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Railway Age

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In This Issue

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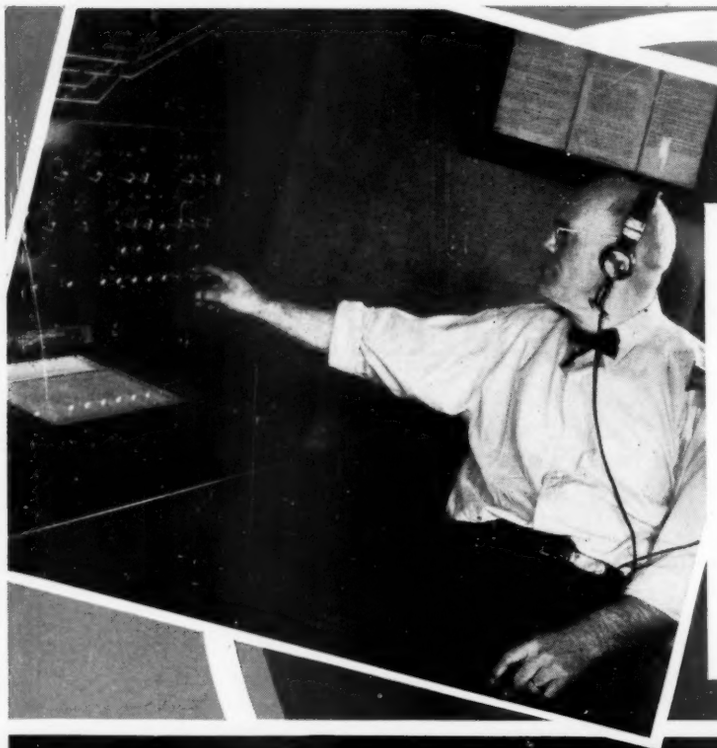


The increased use of "Union" Centralized Traffic Control may indicate only that railway business is improving. It may also prove that the railways think "Union" C. T. C. is improving their operating efficiency and safety and reducing operating costs. Comments made by railway officers who have had experience with operation under "Union" C. T. C. indicate the latter.

COMMENTS OF OPERATING OFFICERS

Train dispatchers and division officers who have had experience with operation under C.T.C. are without exception enthusiastic over the improved performance experienced. The following comments are examples:

"These installations have more than returned their cost at this time and I can say to you frankly that we are very much interested in signal installations."

"I believe it is the greatest development towards expediting train movements and reducing operating costs that we have seen in the last twenty-five years or more."

"Our men like it very much, they can always go when ready. We haven't had a terminal delay since I don't know when. Crews have nothing to remember—they act at the time and place they are supposed to act, one thing at a time, and in my opinion the movement of trains by the indication of signals is the greatest movement in the safety first program that has yet been devised."

"Our non-stop meets are so regular that they do not attract attention any more. Every engineman seems to think he should make non-stop meets.

"We recently had a day with 55 train movements, which has been our heavy day—although I noticed no excitement about it. You can imagine what it would have been if we were operating under the train order system."

"We are equipped with automatic signals and Centralized Traffic Control, whereby trains are operated by the indication of signals, so can appreciate all the good things these do for the railways.

"We haven't issued a train order of any kind or description since December 18, 1929, except last month when we moved our dispatcher's office from one building to another, when it was necessary to put out but one written order.

"Our train and enginemen are enthusiastic about the traffic control.

"In my opinion, moving trains by the indication of signals is the biggest improvement in train operation since the automatic air brake was adopted."

"Aside from the usual safety features peculiar to automatic block signals, and interlocking, this system within an hour after being placed in service demonstrated a new one. It occurred as follows:

"A freight train with approximately 80 cars passed the dispatcher's office on the east main. It was observed that there was a car off center in about the middle of the train, the front trucks being driven back to about the middle of the car The route had already been lined up for the through movement. The dispatcher restored the signal in advance of the train to the stop position, stopping the train at the end of double track. A member of the crew immediately came to the phone at the stop signal, in accordance with instructions, and was told of the trouble by the dispatcher. The defective car was cut out. Under the old arrangement, it would have been impossible to notify the crew until the next office was reached, approximately four miles away. It is quite probable that the front end of the defective car would have dropped down to the track before reaching that point, thus causing a serious accident."

"Since we put our C.T.C. in operation, I have maintained that it was the most efficient and effective method of dispatching trains I had ever seen."

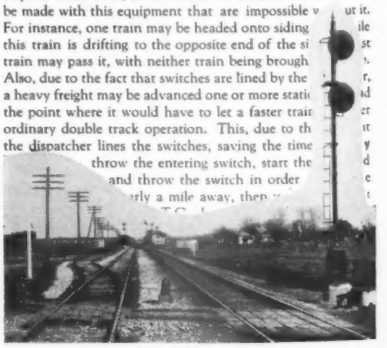
"The advantages of C.T.C. in the operation of trains are many; a few of these advantages are listed below:

"During the peak movement of perishables before the installation of this equipment, freight trains often consumed eight to ten hours over the district, due to the large number of opposing trains to be met, and the number of passenger or more important trains which it was necessary to pass by them. A considerable portion of this delay was due to having to hold such trains back in order to avoid bunching them, and thereby avoid bad saw-bys. It was a daily occurrence for important trains to be held awaiting train orders which would permit them to move, and often times they were moved from one telegraph office to the next, at which point they were again held awaiting further orders.

"Passenger trains, also, frequently met with delays sawing by long freight trains due to inability of the train dispatchers to keep them from bunching.

"Since C.T.C. was installed, these delays have all disappeared. The movement, from the moment a train appears at either end of the district, being continuous and with not an instant's delay starting, no matter what the class of train, size of it, or the frequency of trains may be. The average time for tonnage trains over the district is rarely over one hour and thirty minutes; passenger trains meet with no delays due to train operation; and local freights are consuming less than half the time over the district than they formerly used; in fact there is no delay due to meeting or passing of trains, a majority of the meets being non-stop for both of the trains.

"I consider C.T.C. installation equal to, and in some respects better than, double track. In fact, several moves can be made with this equipment that are impossible v ut it. For instance, one train may be headed onto siding ile this train is drifting to the opposite end of the si st train may pass it, with neither train being brough . Also, due to the fact that switches are lined by the r, a heavy freight may be advanced one or more stati d the point where it would have to let a faster trai er ordinary double track operation. This, due to th it the dispatcher lines the switches, saving the time y throw the entering switch, start the d and throw the switch in order e rly a mile away, then



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Proposed Train Limit Legislation

If loadings of freight continue to increase as much during the next four or five months as they did during the first one-third of this year it will be necessary in order to avoid a shortage of transportation for the railroads meantime to acquire all the new and repair all the old equipment that they can, and for the handling of freight cars next fall to be as efficient as possible. Any action that will interfere with the acquisition or repair of equipment or with the most efficient possible use of it will increase the already serious danger of a "car shortage." Such interference is threatened by the bill to limit freight trains to 70 cars which recently was favorably reported by the Senate Committee on Interstate Commerce without any hearings regarding it.

In the first one-third of this year car loadings increased 15.4 per cent. In an editorial published in its issue of October 17, 1936, when the peak traffic of last year was being handled, the *Railway Age* estimated that the peak loadings of 1937 would be 15 per cent greater than the peak loadings of 1936, and that the railways would have to acquire 150,000 new freight cars to avoid a car shortage in the fall of 1937. The actual increase in loadings thus far this year supports these estimates. On the basis of a 15 per cent increase peak loadings next October will be 945,000 cars a week, or 120,000 cars more than in October, 1936.

Would Reduce Inadequate Supply of Locomotives

Whether adequate and satisfactory service can be rendered depends as much upon the available supply of locomotives as of freight cars. The railways and the builders of locomotives and cars are making heroic efforts to provide enough equipment to handle the peak traffic next fall. The railways ordered more new locomotives and freight cars last year than in any year since 1929. Statistics compiled by the *Railway Age* show that orders in the first one-third of 1937 were much larger than in the first one-third of 1936. The number of locomotives ordered in the first one-third of 1936 was 88. The number ordered in the first one-third of 1937 was 192, of which 58 were ordered in April. The number of freight cars ordered in the first one-third of 1936 was 12,563. The number ordered in the first one-third of 1937 was 40,659, of which 13,046 were ordered in April. But locomotives and freight cars cannot be built as fast as ordered. Furthermore, it is necessary, because so little equipment was bought during the depression and the consequent deterioration of it that has occurred, constantly to scrap many old cars and locomotives that have become unfit for service. In consequence the new locomotives and cars being acquired cannot be net additions to the available equipment.

With these facts in mind let us survey the prospective equipment situation in relation to the prospective volume of traffic.

The peak traffic of 1937 promises to be approximately as large as the peak traffic of 1930. In October, 1930, the railways had about 45,200 freight and switching locomotives. In October, 1936, they had only about 36,400 freight and switching locomotives. This decline was, of course, due to the facts that during the depression years they did not need as much power as before and that they had neither the earnings nor credit with which to replace locomotives that were worn out and had to be retired. They need more and better locomotives now as much as they need more freight cars. Although they ordered more new locomotives in 1936 than in any year since 1929, the number of locomotives retired has exceeded the number placed in service even since the peak of traffic last October. In the five months October-February, inclusive, the number of freight and switching locomotives retired was 697 and the number installed only 237. There were 359 new steam locomotives on order on April 1 of which the bulk were for freight service, and 58 more were ordered in April. But even though all these and additional locomotives are built and delivered before fall, retirements of old locomotives will have to con-

tinue and there will not be a substantial increase in the total supply. Locomotives now have a greater average tractive power than ever before, but this is principally because during the depression years so many old locomotives of less than average tractive power have been retired; and meantime most of those that have not been retired have been growing older and less efficient.

Would Impair Freight Car Efficiency

The figures indicate that the railroads will have approximately 20 per cent fewer locomotives in the fall of 1937 than in the fall of 1930, and fewer than in the fall of 1936, with which to handle a volume of freight traffic approximately as large as in 1930 and 15 per cent larger than in 1936. Obviously, therefore, any action which reduced the amount of traffic that could be handled with each locomotive, and especially with each of the larger, more powerful and more efficient locomotives, would increase the danger that they would not be able to handle satisfactorily the total available traffic. Now, obviously legislation limiting the number of freight cars in a train to 70 would curtail the number of cars in every train that otherwise would have more than 70. This would increase the number of trains needed and the number of locomotives required to pull them. But would the additional locomotives required be available? They probably would not be. Thus legislation limiting freight trains to 70 cars probably would create artificially a greater demand for locomotives than could be supplied and hinder the prompt and efficient movement of freight cars and freight traffic.

The prospective freight car situation is closely related to the locomotive situation. There is prospect of a shortage of freight cars this fall, however efficiently they may be distributed, loaded and moved. On October 1, 1936, the railroads had on line 1,743,146 freight cars, of which 241,573 were in bad order and 1,501,573 cars in serviceable condition. This was not quite enough serviceable cars, and there were some shortages. During the subsequent five months 25,765 cars were placed in service but the number retired from service was about twice as great as this. Hence on March 1, 1937, the number on line was 1,720,004, or less than last October. The number in bad order had been reduced to 201,960, but this left only 1,518,044 in serviceable condition, or but 16,471 more than last October. The number on order on April 1 was 46,439, and 13,046 were ordered in April.

Prospect of Car Shortage, Anyway

If we should make the rather extreme assumptions that none of the cars now in serviceable condition would get into bad order during the next five months, that 60,000 new cars would be finished and put in service and that 80,000 of the cars now in bad order would be put in serviceable condition, the total supply of serviceable railroad cars on October 1 would be 1,658,000. Adding about 285,000 cars owned by private companies would make the total supply of serviceable cars about 1,943,000. Experience indicates that to meet a demand for 945,000 cars for loading weekly would require 2,080,000 cars in good condition. The figures indicate that if the traffic available in the fall of 1937 is 15 per cent larger than in the fall of 1936 there will be a shortage of cars even if they are distributed, loaded and moved as efficiently as practicable.

Now, suppose there is legislation reducing to 70 cars all trains that, in the absence of such legislation, would contain more than 70 cars. This, as already shown, would reduce the efficiency of locomotives in distributing and moving cars with the result, in effect, of reducing the available car supply. Thus the proposed legislation upon which the Senate Committee on Interstate Commerce has reported favorably would unquestionably increase the shortage of transportation with which the country is threatened anyway, and thereby curtail commerce when every sane person desires to see it continue to increase.

Would Not Reduce—But Increase—Accidents

The claim made for the proposed legislation is that it is in the interest of safety. A case involving a statute passed by the legislature of Nevada limiting trains in that state to 70 cars recently was decided by a special three-judge court. The court specifically adopted the following finding of the Special Master in Chancery: "A careful review of all the evidence warrants the conclusion that from the standpoint of safety to the public, to travelers on railroads and to railroad employees, the Nevada Train Limit Law bears no reasonable relation to safety but if enforced would impair and lessen the safety of plaintiff's present method of freight train operation in Nevada." It also adopted the finding of the Master that the cost of the Southern Pacific of remodeling its system to comply with the Nevada statute would be $350,000 in addition to an increased annual expense in excess of $500,000.

This definite finding that legislation to limit trains in Nevada to 70 cars *would tend directly to increase accidents* is, of course, applicable to the proposed legislation by Congress to impose a similar limitation on trains operated anywhere in the United States. This, together with the fact that it would increase operating expenses, should constitute a conclusive argument against it. The railways need to continue buying equipment and materials on a large scale to provide facilities imperatively required to enable them to meet the increasing demands of traffic. Any measure that increases their operating expenses will automatically reduce the net earnings and credit they must have in order adequately to expand and improve their service.

The proposed legislation to limit the length of trains is plainly contrary to the interest not only of the railroads and of every agricultural and industrial producer and shipper in the country, but also of employees and

passengers because (1) it would increase accidents, (2) it would increase operating expenses and (3) it would aggravate a shortage of transportation which threatens to occur anyway.

A Worthwhile Exhibit

Next month, June 17-23, the Railway Supply Manufacturers' Association will stage an elaborate exhibit at Atlantic City in connection with the meetings of the Mechanical and Purchases and Stores Divisions of the Association of American Railroads. About 250 companies have thus far applied for exhibit space and the indications are that this number will be considerably increased during the next few weeks.

The exhibit this year will offer unusual opportunities. During the prolonged period when business was at a low ebb in recent years, many of the railway supply companies carried on extensive research and development work. That this has already proven effective in some instances is indicated by the rapidity with which air conditioning of passenger train cars progressed during the depression, and by the introduction of high speed streamlined articulated passenger trains.

But hundreds, yes thousands, of other improvements have been made in mechanical department materials, equipment and facilities. Because of economic conditions the railway supply manufacturers have been handicapped in demonstrating their new products as widely and as actively as they desired. At the same time many changes have occurred in the supervisory forces on the railroads and a great number of men have been placed in positions of responsibility who have not heretofore had an opportunity of attending railroad conventions and viewing extensive exhibits.

For these reasons it was not hard this year to secure enthusiastic co-operation on the part of the railroad associations in joining with the Railway Supply Manufacturers' Association in arranging for an elaborate exhibit. This will enable the supply companies to show their wares advantageously, and at the same time it will be a liberal education for those officers and supervisors who have been advanced in recent years and who need just such an opportunity to familiarize themselves with the latest improvements in equipment and facilities. To this end, special stress was placed on the necessity for preparing and presenting the exhibits from an educational viewpoint—"a small university" was the term used in some of the preliminary discussions between railway officers and railway supply representatives.

An innovation will be introduced this year that will also appeal to the traffic departments of the eastern railways. Those who have watched the rapidly growing popularity of special trips for railroad enthusiasts, will recognize the opportunity afforded by opening the big exhibit to the general public on the Saturday and Sunday intervening between the sessions of the car and locomotive meetings of the Mechanical Division.

April Equipment Orders

April equipment orders have swelled the totals for the first third of 1937 to a point far beyond those of the corresponding months of 1936 and pleasingly close to the records of the first four months of 1929. April also outshines the preceding months of 1937, exceeding in freight car orders, the nearest competitor, January, by 3,165 cars, and in locomotive purchases, by 38 units. Only in passenger cars did orders decline, failing to equal any of the three preceding months.

There were orders placed for 84 locomotives in April, 57 steam, 16 Diesel-electric and 11 electric,—which are 69 units in excess of April of 1936, or 5½ times more. This addition brings the figures for the first third of the year to 192, compared with 88 for the parallel period of 1936. Furthermore, a perusal of 1929 equipment statistics will show that railroads ordered 26 more locomotives in April of 1937 than in the corresponding month of 1929. In addition, inquiries for 23 locomotives for domestic service and 75 for export to China were outstanding on May 1.

April's freight car orders, quoted at 13,046, are almost four times greater in volume than the 3,650 total of the same month of 1936, and, it might be noted as well, represented a notable extension of the buying field, as the orders were placed by 16 roads while only four systems participated in the purchases of April, 1936. These tabulations bring orders for the first third of the year to 40,659, or more than three times the 12,563 total for the identical period of last year and greater in volume than the twelve-month totals for any year since 1930, exclusive of 1936. If comparison be made with the 1929 records, it will be seen that last month's orders exceeded the 6,983 tabulation for April of 1929 by 6,063 cars and purchases for the first four months of the present year failed by the comparatively small margin of 4,237 to reach the level of the corresponding months of 1929. And the 3,550 cars on inquiry, as of May 1, aid materially in reducing that margin. In addition to these domestic demands, equipment companies have received from abroad inquiries for 200 freight cars.

Orders in the passenger-train car field fell off appreciably in April, the total of 52 units comparing somewhat unfavorably with the totals of the preceding months of 1937. On the other hand, orders from Canada, comprising 50 cars, constitute a sharp rise in passenger equipment business from that quarter and aid in filling the gaps. And it must be recognized that the combined orders for the first third of the year, a total of 438 units, entirely engulf the 87-car total for the corresponding third of 1936, and, in fact, top the totals for the entire twelve-month periods of 1931 through 1936. Likewise, as in the locomotive and freight-car categories treated above, do the passenger-car orders for the same period stand up favorably against the 552 units quoted for the parallel months of 1929; to be specific, at an approximate ratio of 4 to 5.

New Line Near the Lower End of Thurston Canyon—Portion of Old Embankment on the Opposite Side of the Creek, at the Left

Relocations in Western Texas Overcome Flood Hazards

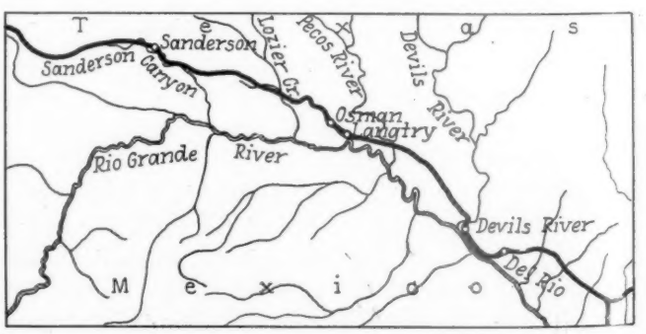
Southern Pacific carries out improvements in Sanderson and Thurston canyons on its Sunset Route in Western Texas

AN excellent example of the progressive improvement of a line, for the purpose of affording security against interruption of traffic by floods, is presented by the line changes carried out on the Sunset route of the Southern Pacific, Texas and Louisiana lines, in Val Verde and Terrell counties, in Texas. Because of physical conditions described in following paragraphs, certain parts of this line have suffered flood damage from time to time ever since it was completed in 1883, and some minor line changes to correct this condition were made years ago. However, the first major change in this territory was made in 1925-26, when 13.91 miles of line between Langtry and Osman was replaced by a new line on a more direct location that saved 4.51 miles of distance. Like this project, which was undertaken after several disastrous flood experiences, water troubles in 1935 resulted in four additional relocations that were completed in 1936, namely, one in Thurston canyon 7 miles long and three in Sanderson canyon totaling 6.61 miles. This article deals primarily with the improvements in the Thurston and Sanderson canyons.

This portion of the Sunset route traverses the Edwards plateau, comprising a limestone uplift of an ancient sea bed that dips to the southeast on a grade of about one per cent and has been deeply eroded by the Rio Grande river and its tributaries. From Del Rio on the east to Sanderson on the west, the railroad is roughly parallel with the river, but because the rugged tortuous Rio Grande gorge offered all too formidable obstacles, only 10 miles of the line in the vicinity of Devils River was located along the river bank. For the remaining distance of some 120 miles to Sanderson, Tex., it was located from 2 to 20 miles north of the Rio Grande, in spite of the difficulties imposed by unfavorable topography at the crossings of the various tributaries that flow into the river from the north.

At the crossing of the Pecos river where the line lies on top of the plateau, the famous Pecos viaduct carries the track across the gorge at an elevation 320 ft. above the stream bed. However, the crossing of nearly all of the other main tributaries was effected by low level bridges and involved descents from the plateau through the canyons of secondary tributaries that lie approximately parallel with the Rio Grande river. With minor exceptions, these lateral canyons have broad flat bottoms that afforded opportunities for inexpensive railroad construction, although frequent stream crossings had to be introduced to avoid excessive curvature. Thus, Willow creek west of Langtry was crossed seven times in eight miles, Thurston canyon seven times in six miles, and Sanderson canyon, eight times in as many miles.

In a territory of infrequent but violent rainfall, steep slopes and sparse vegetation, railroad lines on the floors



Map of Portion of the Southern Pacific Line in Western Texas, Showing How the Location Crosses the Tributaries of the Rio Grande

of canyons and embracing frequent stream crossings are especially vulnerable to flood damage, and this portion of the Southern Pacific was no exception. The destruction of seven bridges and severe damage to another structure, together with the loss of considerable embankment following a storm in the fall of 1919, led to the relocation between Langtry and Osman, previously mentioned. Similarly, severe damage to the line in Sanderson and Thurston canyons in 1935 give rise to like improvements.

The flood troubles of 1935 started in May and were repeated in June and July, each time causing short interruptions to traffic. However, a much greater flood occurred in September that washed out the seven trestles that served as crossings of Thurston creek and also carried away the east approach embankment of the steel bridge across Lozier creek, which is located just downstream from the point where Thurston creek enters Lozier canyon. In Sanderson canyon, this same storm resulted in the loss of eight crossings of the creek, including seven trestles and a steel girder bridge on concrete masonry located just east of Sanderson. With the loss of these structures, together with the destruction of embankments, it was 11 days before the line could be restored to service. Surveys for relocations were started shortly after train service was resumed and contracts for the construction were awarded on November 1.

The Relocated Lines Are on Higher Ground Than the Sections of Old Line They Replaced

Eliminate Stream Crossings

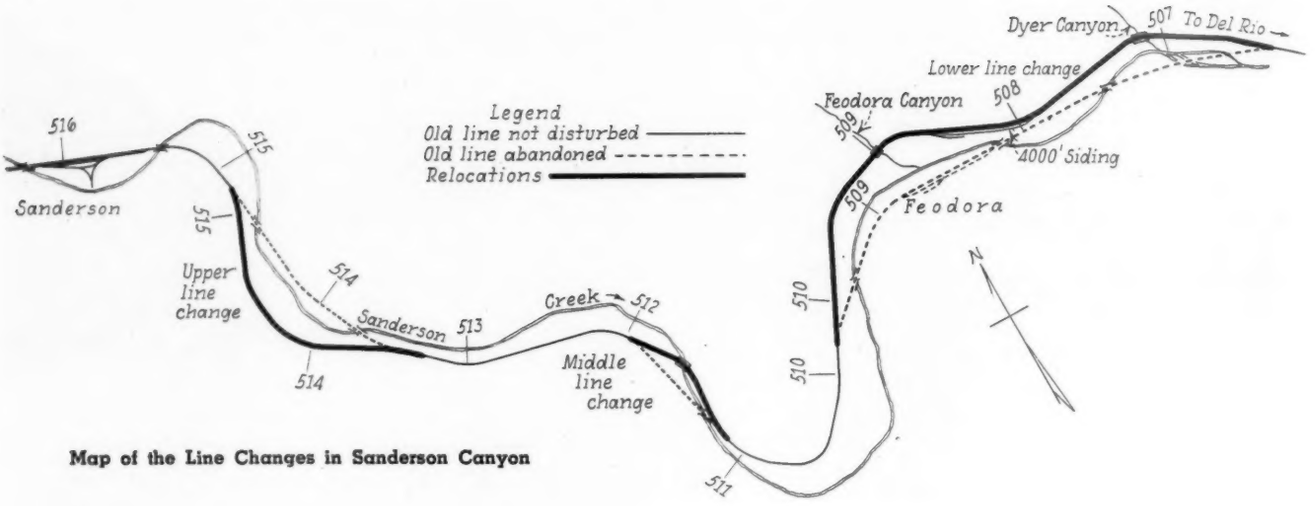
The objective in these locations was to avoid crossings of the creeks so far as this was possible and to place the line at a sufficient elevation to keep it above high water levels. The ruling grade on this line is one per cent in both directions, but in both Thurston and Sanderson canyons, where the grade ascends westward, there is considerable slack grade. By starting at the lower end of these relocations with a continuous, compensated one per cent ascending grade it was possible, therefore, to raise the grade appreciably above that of the old line. In two relocations in the Sanderson canyon the ascent was continued to a point where the elevation was approximately the same as that of the old track at the upper end of the change, whence the new line was continued on a level, or nearly level, grade for the remaining distance. In the Thurston relocation, topographic conditions necessitated the introduction of two short westbound descents involving 23 ft. of rise and fall. On this line the new grade attains an elevation 50 ft. above the old line, whereas in the Sanderson canyon the greatest difference is about 25 ft.

In one of the canyons the relocations are longer and in the other shorter than the old lines abandoned. The new lines involve some increase in total curvature and include three 6-deg. curves and one 5-deg. curve, all the other curves being 4 deg. or less. However, there are curves up to 10 deg. in adjacent portions of the line not affected by the relocations.

The relocation in the Thurston canyon is 7 miles long and is shorter by 0.23 miles than the old location. The new line is located on higher ground along the south side of the canyon, except for a crossing of the creek to the north side at the west end. This crossing embraces a 150-ft. through truss span, one 75-ft. through girder span and 75 ft. of pile trestle approach. This bridge, together with a 90-ft. trestle over a side drainage and a ranch road comprise all the bridge work on this line, which is to be compared with seven creek crossings on the old line, involving a total of 3,437 ft. of trestle.

The line revision in Sanderson canyon embraced three separate relocations having an aggregate length of 6.61 miles, an increase of 0.75 miles over the length of the old line. The lower relocation is all on the north side of the canyon and eliminates four crossings of the creek. The middle relocation, which is only 4,777 ft. long, was made for the purpose of obtaining a better crossing of the creek. This change introduced 38 deg. 35 min. of additional curvature and 229 ft. of added distance but resulted in an appreciable reduction in the angle of the creek crossing and placed the bridge at a location where rock foundation was available. The pile trestle creek crossing on the old line at this point was on very sharp skew with the direction of the stream, and gave rise to so much difficulty in holding the approach embankments during high water that the length of this trestle was increased progressively from 195 ft. to 400 ft. during the succeeding floods of 1935. The new bridge consists of four 80-ft. deck girders, one 75-ft. deck

This Bridge on the Middle Line Change in Sanderson Canyon Replaced 400 ft. of Pile Trestle on the Old Location



Map of the Line Changes in Sanderson Canyon

girder and one 18-ft. beam span, all on concrete masonry.

The upper line change in the Sanderson creek is located on the south side of the canyon and avoids two crossings of the creek. In addition to the stream crossing described above, the lower Sanderson relocation involved three bridges across side canyons, of which one is a 60-ft. pile trestle, another embraces one 25-ft., one 50-ft. and one 70-ft. deck plate girder span and an 18-ft. beam span, while a third embraces one 25-ft. and one 70-ft. girder span and one 18-ft. beam span. Compared with these structures, the old line replaced in the Sanderson canyon embraced 3,699 ft. of pile trestle or frame trestle on concrete pedestals.

Other Bridge Work

This project also included the reconstruction of one crossing of Sanderson creek not embraced within the limits of the relocations, being located just east of the town of Sanderson. The old bridge at this point, which consisted of 25-ft. girder spans on low concrete piers and abutments, was destroyed by the flood, and in the reconstruction only two of the 25-ft. spans were retained, four additional spans of 36-in. beams 43 ft. long being provided. The substructure was entirely rebuilt. Two of the girder spans from the old bridge were used in the two side canyon structures mentioned above. It is of interest to note also that the 75-ft. deck girder span in the Sanderson Creek bridge and the 75-ft. through girder span in the Thurston Creek crossing were provided by cutting an old 150-ft. through drawbridge in two and making the necessary alterations.

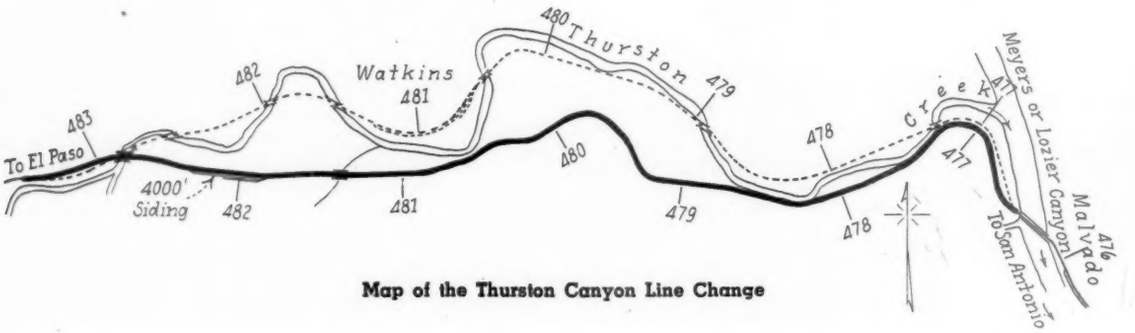
The network of concrete piers for the various structures was all built to the same horizontal dimensions and of a fixed height, namely, 16ft., to permit the use of one set of steel forms fabricated at the maintenance of way shops of the railroad. Differences in the total pier height required at the various locations were overcome by varying the elevation of the top of the footing as required. Owing to the fact that coarse aggregate (gravel) could be obtained from the stream bed and in some cases from the footing excavations, it was possible to expedite the work and avoid expensive field transportation. The entire substructure of the Sanderson Creek bridge was finished in 11 days.

Minor drainage openings were provided by paved invert Armco corrugated pipes. For the large drainage areas pipes up to 84 in. in diameter were installed; as many as three at a single location.

Grading

The embankment quantities, which exceeded the quantities in excavation on all the relocations, amounted to 173,000 cu. yd. in the Thurston work and 87,000 cu. yd. on the Sanderson project. The material encountered on the latter work included very little solid rock, most of the material being caliche, clay, sand and gravel. In Thurston canyon considerable solid rock was encountered in the cuts at the east end of the relocation. The work was light. The heaviest excavation involved the moving of about 16,000 cu. yd. in a center line length of about 700 ft. and the largest fill entailed the placing of about 20,000 cu. yd., in a length of about 1,000 ft.

The grading was awarded on the basis of compensation for the quantities placed in embankment only, the contractors being given the option of wasting any or all of the material excavated from cuts and of constructing the embankments from borrow. In side-hill work at the east end of the Thurston relocation the contractor found it more economical to waste the rock excavation by "shooting" it over the cliff than to haul the material to place in fills. Because of the wide variations in the size and nature of the grading work, a variety of methods



Map of the Thurston Canyon Line Change

Heavy Rock Protects the End of the Fill at This Bridge

were used in excavating and moving the material. Shovels with trucks and teams were used to a considerable extent, but embankments were also made from side borrow with fresnos and drag lines.

Use Materials from Tracks Taken Up

Owing to the fact that the track on the old line in the territory affected by the relocations had been almost completely rebuilt with new material, following the flood in the fall of 1935, it was highly desirable to reuse as much of this material as possible in the construction of the track on the new lines. To this end only enough new track material was provided to complete the first section of new line to be placed in operation in Sanderson canyon, following which the track on the old line that was released was taken up for use on a second section of the new line. After the last Sanderson relocation had been completed, track material released from the last section of old line was loaded up for use in laying a part of the track on the Thurston relocation.

The grading and culvert work on the Thurston relocation and on the lower change in the Sanderson canyon were done under contract by the Gifford-Hill Construction Company, Dallas, Tex., while the same work on the other two locations on the Sanderson creek line was done by the W. J. Harris Contracting Company of Houston, Tex., except for a rock cut at the new Sanderson Creek bridge which was taken out by company forces. The material from this cut totaled 5,700 cu. yd. and was used for riprap, in addition to 3,000 cu. yd. obtained from other sources. Company forces also constructed the substructures for the bridges, erected the steel work, built the trestles, did all track work and made the changes in the signals. A number of small contracts were let for the moving of buildings and fences.

Under this arrangement the three locations in the Sanderson canyon were completed on March 17, 1936, and the relocation in the Thurston canyon on April 17. The total cost of the relocation in the two canyons was approximately $600,000. The work was planned and carried out under the direction of R. W. Barnes, chief engineer of the Southern Pacific, Texas and Louisiana lines, Houston, Tex.

Two 78-in. and One 72-in. Corrugated Iron Pipe Culverts on the Thurston Relocation

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading for the week ended April 24 totaled 761,182 cars, an increase of 9,854 cars or 1.3 per cent above the preceding week, an increase of 95,233 cars or 14.3 per cent above the corresponding week in 1936, and an increase of 202,246 cars or 36.2 per cent above the corresponding week in 1935. All commodity classifications except coal, grain and coke showed increases over the preceding week, and all commodity classifications except coal and grain showed increases over last year. The summary, as compiled by the Car Service Division, Association of American Railroads, follows:

Revenue Freight Car Loading

For Week Ended Saturday, April 24

Districts	1937	1936	1935
Eastern	167,033	151,956	130,602
Allegheny	161,229	141,791	105,250
Pocahontas	50,883	46,967	36,788
Southern	109,166	99,456	83,422
Northwestern	112,482	78,293	72,259
Central Western	103,762	94,341	83,699
Southwestern	56,627	53,145	46,916
Total Western Districts	272,871	225,779	202,874
Total All Roads	761,182	665,949	558,936
Commodities			
Grain and Grain Products	28,217	33,106	26,991
Live Stock	14,754	14,032	13,931
Coal	119,465	124,073	84,100
Coke	10,054	7,541	4,750
Forest Products	37,015	32,205	26,824
Ore	54,696	11,098	12,817
Merchandise L.C.L.	169,829	160,803	158,920
Miscellaneous	327,152	283,091	230,603
April 24	761,182	665,949	558,936
April 17	751,328	642,278	611,141
April 10	716,044	621,843	586,568
April 3	726,687	613,581	545,456
March 27	761,109	594,789	616,520
Cumulative Total, 17 Weeks	12,053,880	10,445,488	9,807,019

Car Loading in Canada

Car loadings in Canada for the week ended April 24 totaled 47,146 cars, an increase over the previous week of 281 and of 2,613 over last year, according to the tabulation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
April 24, 1937	47,146	30,731
April 17, 1937	46,865	31,207
April 10, 1937	47,344	28,461
April 18, 1936	44,533	24,970
Cumulative Totals for Canada:		
April 24, 1937	752,000	455,353
April 18, 1936	673,371	370,201
April 20, 1935	683,161	367,088

Huntington, W. Va., Center of C. & O. Stores Operations, From the Air. General Storehouse in Right Foreground

The Modern Purchasing and Stores Department*

Organization, education and better equipment listed among causes of more efficient railway supply work

By G. O. Beale

Chief Purchasing and Stores Officer, C. & O. N. Plate & P. M.

MANY things have happened during the last 20 years that account for the prominence of the purchasing and stores department in the railway organization. In the old days, the division storekeeper often had several bosses—the master mechanic, the division engineer, the superintendent, and sometimes the superintendent of motive power. He ordered materials for his division without thought of the materials already on hand on other divisions, and there was not, on many railroads, a clearing house where intelligent consideration could be given to the requirement of materials for the railroad as a whole.

The war came along; then federal control of railroads, and, at the end of February, 1920, the railroads were returned to their owners. The condition of railroad equipment was nothing to be proud of. Material prices had skyrocketed and many materials could not be purchased for reasonable deliveries, even at the higher prices. Notwithstanding these conditions, railway management promised to provide better and cheaper transportation. Within a year or so after the railroads were returned to private ownership, a virtual crusade was made to rid them of obsolete equipment. Hundreds of thousands of new cars were purchased, and, within a few years, a great deal of progress had been made in providing better and cheaper transportation. The supply department had to overhaul its personnel, its methods and its equipment, and, I believe the supply departments marched side by side with other departments of the railroads in attaining the highest efficiency ever known to American railroads.

Good Inventory Record

In 1920, the inventory of materials and supplies at the year-end was $755,000,000, and the service rendered by the supply department was anything but the best. The 1936 inventory was $307,000,000—a decrease of $448,000,000, or nearly 60 per cent, and I venture to say the service was as good as had ever been furnished before. The 1936 prices were, of course, lower than 1920 prices, but an inventory reduction of nearly 60 per cent was made possible because the supply department had become better organized and better equipped to handle its work. It had become better educated in the art of ordering and purchasing materials, and better equipped with stores facilities and mechanical equipment for storing and distributing materials. Railway managements saw the necessity of liquidating the huge inventories which had been built up during the post-war boom, and I expect the $755,000,000 inventory at the end of 1920 had something to do with the inauguration or the extension of maintenance programs, particularly mechanical department programs, which have done more than any one thing in assisting the supply department in providing the materials needed.

Publications Praised

With the march of time, a large part of the railway industry has become convinced of the necessity for a closely co-ordinated purchasing and stores organization —trained in handling the problems of purchase; experienced in good practices of storing and distributing materials, and wise enough to appreciate that to be successful, it must endeavor to anticipate the needs of the using departments and be able to supply the materials when needed. While certain railways and railway officers may deserve credit for the development of this idea, that credit cannot fairly be given unless at the same time grateful recognition is made of the assistance rendered by several organizations outside of the railroads.

* From a paper presented before the Western Railway Club on April 19.

I refer to the Division of Purchases and Stores—Association of American Railroads, with W. J. Farrell as secretary; the *Railway Age,* with D. A. Steel as purchases and stores editor, and Railway Purchases and Stores, with Ed Wray as publisher and Phil Murphy as editor. These organizations have accomplished a great deal in raising the standard of the entire supply department.

Significant Improvements

What are some of the improvements in stores work that have tended to modernize this department? I do not call them modern practices, because when looking at a lot of iron and steel material, trucks, tractors and trailers, it is hard to visualize the word "modernistic" as it is used today. But what I have in mind are the improvements and changes that have been responsible for the creation of a modern stores department.

I think the most important development of all was the establishment of the stores department as an integral part of the supply department, under the jurisdiction of a chief stores officer charged with the responsibility for ordering at the proper time and for ordering correct quantities of the right kind of materials. In addition to ordering materials, the chief stores officer has juurisdiction over all materials carried in stock and the transfer of materials from one point to another. The creation of the stores department brought into being a central station where every branch of the railway could make its wants known; and that central station can, with speed, accuracy and economy, determine whether the materials wanted are already available or whether they will have to be purchased.

An agency of considerable aid to the storekeeper in immediately identifying materials is the use of an index or item number, which is merely a new application of an old thought. The New York and Westinghouse Air Brake Companies have voluminous catalogs in which are listed hundreds of repair parts, and to each of these parts is assigned a "piece number" which is used for identification. The index number used by the railroads is more than an identification number—it indicates, as well, the page and line number on which the item of material may be found in the stock book. When it is considered that there are around 75,000 items of materials listed in the stock books, the importance to the stockkeeper of a system which will tell him how and where to find the stock record of each and every item of material listed will be readily understood.

Another improvement was the adoption of the A.A.R. Material Classification. This classification, and those similar to it, causes certain materials to be segregated and classified according to their natural relationship, one to the other. The materials that are used together are stored together. In this way, the sectional storekeepers become better acquainted with their materials, and when filling orders, it is not necessary to go all over the storeroom for materials which are usually issued together. Another advantage of the A.A.R. Material Classification is that it enables railroads to prepare material stock reports in accordance with the A.A.R. Classification. The A.A.R. Classification provides the basis for the best report of this kind that has been brought to the attention of the railroads.

A Typical Section Stockman's Office on the C. & O., Equipped with Telephone, Stock Books and Order Blanks

Machines for Handling Materials

Of the physical equipment furnished the stores department for storing and shipping materials, I suppose the lift and platform powered trucks, together with skid boxes, are the most useful. The skid boxes are used for storing materials at the general storeroom, for shipping materials to outside points, and for shipping bulk materials from manufacturers to general storerooms—materials such as rivets, brake shoes, journal bearings, etc. With the use of platform and lift trucks, the loaded skid boxes, containing from 3,000 to 4,000 lb. of material, can be moved in and out of cars and from storeroom to points

Tractor and Stores Delivery Terminal and Transfer, Huntington, W. Va.

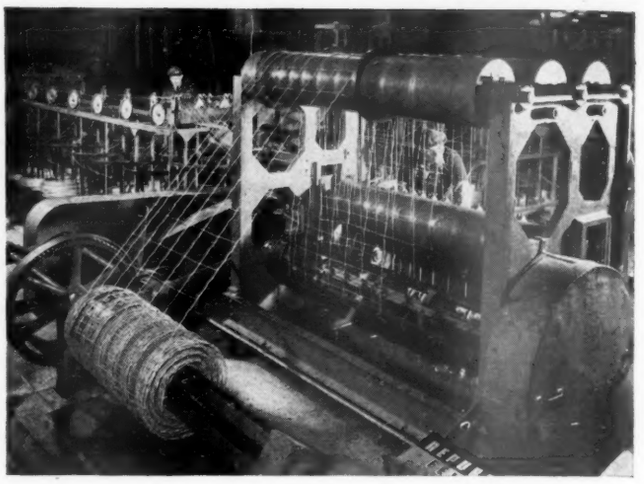
of use with less human effort than was formerly required to handle a 200-lb. keg of bolts.

An improvement which may be said to have assisted in the modernization of both the stores and purchasing work, is the combination purchase order-requisition form for ordering materials. The use of this form with one operation permits the preparation of the material requisition, purchase order and several additional copies for use by inspection bureaus, invoice bureaus, consignees and receiving clerks. The forms all bear the same number, which constitutes the inquiry number, tabulation record number and purchase order number. This document is merely a link in the chain of a system which is of little value unless the complete sequence of all interdependent records is maintained. In this way, the purchasing agent's records are in complete harmony with records of the general storekeeper and they both speak exactly the same language.

Maintenance work is better programmed than before, and this, together with the efficient stores organization, has greatly simplified the routine work of the purchasing agent. Adoption of the combination purchase order-requisition form eliminates the necessity of writing purchase orders in the purchasing department, a source of headaches in the days before index numbers and stock books were in general use.

All of these things have played a part in developing the work in the purchasing office to a point where it is now handled in an orderly and efficient manner, just as much so as the work in a bank or insurance office or any other office is handled. The purchasing agents are not buried with details of a routine nature. They are purchasing agents, negotiating daily and hourly with manufacturers, distributors and their agents for the purchase of materials running into many millions of dollars each year, and I venture to say there never has been a time when such negotiations were on a higher plane.

I make the boast that today, more than ever before, there is a spirit of respect and mutual confidence between railway buyers and railway sellers. We both recognize that in addition to buying and selling commodities, there is unconsciously the purchase and sale of character. In recognition of these facts, I am sure that when and as there may be developed more modern ways which will enable us to do business on a still higher plane, the railroad purchasing officers will be found leading the way.



One of the Battery of Machines for Producing Woven Wire Fence

Republic Steel Corp. Opens New Wire Mill

A NEW wire mill, in which wire is galvanized by an improved electrolytic process, has been constructed by the Republic Steel Corporation at South Chicago, Ill., and was formally opened for operation on April 27. While the electro-galvanizing of wire is not a new development, recent improvements in equipment and procedure have been incorporated in the South Chicago plant, which permit the electro-galvanizing of round wire with heavy coatings at commercial speeds. The plant has a capacity sufficient to galvanize as many as 578 miles of fence wire in a day.

Among these improvements is the galvanized solution used, by means of which it is said to be possible to deposit on round wire uniform, highly ductile coatings without pores or pits at current densities up to 1500 amp. per square foot of surface being galvanized. It is pointed out that early solution for electro-galvanizing permitted the use of current densities of only 5 to 20 amp. per square foot, making the deposition of zinc so slow that the production of wire at a commercial speed would have required galvanizing tanks of prohibitive length. Development of the new solution made possible the installation of a galvanizing unit operating at commercial speed with a tank 140 ft. long.

Another feature of the process involving improvement is the method of cleaning the wire prior to galvanizing it, which is the result of experimental work with many processes. Although not involving highly corrosive reagents or high temperatures, the process used is said not only to clean the wire thoroughly, but to etch the surface to the degree most favorable for firm adhesion of the zinc coating.

The essential features of the wire mill are the rod yard, the cleaning house, the rod bakers, the wire-drawing department, and the electro-galvanizing department. There are also departments for producing nails, field fence, barb wire and bale ties. The rod yard has a capacity of 2,800 gross tons and is serviced by a five-ton high-speed crane with a 96-ft. span and a double-tilting hook. Steel racks for piling rod coils six high in indi-

(*Continued on page 792*)

Take-up Reels at the End of the Electro-Galvanizing Line

Double-Deck Refrigerator Car

Double-deck features of car developed by Fruit Growers Express Company for handling perishable freight susceptible to crushing damage

EXPERIMENTS conducted by the Fruit Growers Express Company in cooperation with railroads, shippers and container manufacturers resulted in the development of a double-deck refrigerator car for perishable freight particularly susceptible to crushing damage.

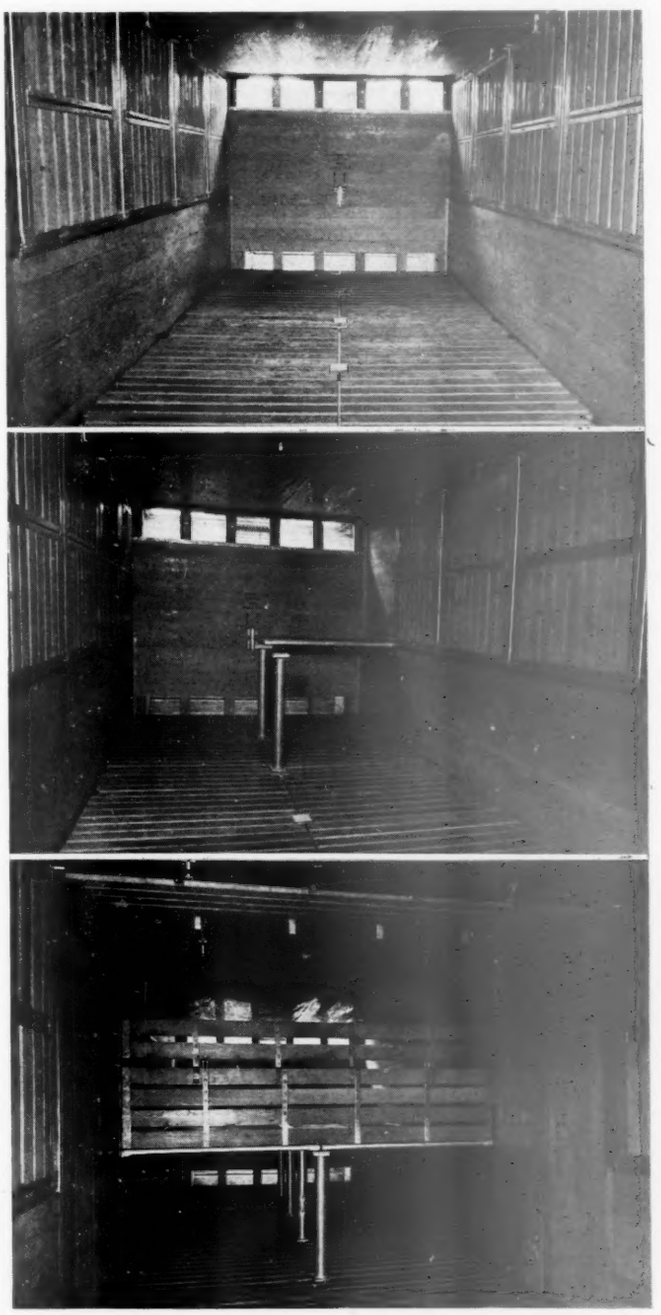
A number of cars of this type are now in service. The upper decks may be folded out of the way for single-deck loading with crates or boxes, or other large units, and lowered for double-deck loading of shipments particularly liable to crushing, such as citrus fruits, apples, vegetables in bulk or bags, and commodities in small cardboard containers.

The car is so designed that when the upper-deck racks are folded away, it has all the dimensions of a standard refrigerator car, such as used for fruits and vegetables, i.e., the length between the ice chambers is 33 ft. 2¾ in. and the width between the side walls is 8 ft. 4 in. When the upper decks are lowered from their side-wall position for load carrying, the height of the loading space from the floor racks to the underneath side of the upper deck is 2 ft. 9½ in. with a width of 8 ft. 4 in. From the top of the upper deck to the bottom of the ice-bunker bulkhead top opening the height is 3 ft. 2¼ in. while the width between side walls is 8 ft. 7 in., making the upper section 3 in. wider, by reason of providing loading space in the recesses in the upper side walls which are occupied by the racks when the car is being used for a standard load.

Arrangements for Loading

The car may be loaded its entire length on the lower deck or floor rack, but in the upper deck the loading space is divided into two compartments, each 14 ft. 3½ in. long and each terminating at the door post where the upper-deck load is supported by adjustable bulkheads. These bulkheads are suspended directly under the ceiling and are out of the way when not in use. This arrangement provides a longitudinal space at the doorway 4 ft. 7¾ in. long free from the floor racks to the ceiling unless the space in the lower deck is loaded between the door openings.

Supports are applied in recesses of each bulkhead, presenting a flush surface when the car is used for single-deck loading. However, these supports project into the loading space for supporting one corner of each of the end sections of the upper-deck racks when double-deck loading is required. The balance of the upper-deck racks are supported on posts, or legs which stand upright when the upper deck is in use, but are otherwise concealed under the floor racks. The legs *B*, shown in the drawing, are hinged to the floor by pins inserted through a key-hole slot in the leg so that they can be dropped and concealed under the floor racks. When the legs are in an upright position the hinge pins prevent them from moving so that the entire upper deck becomes a rigid floor, each section bracing adjacent sections. The sections are held together by dowels in the underside corners of each upper-deck section which fit into holes in plates *A* on top of the legs. End bracing gates *C* are secured to the ceiling when not in use. When the upper deck is used,

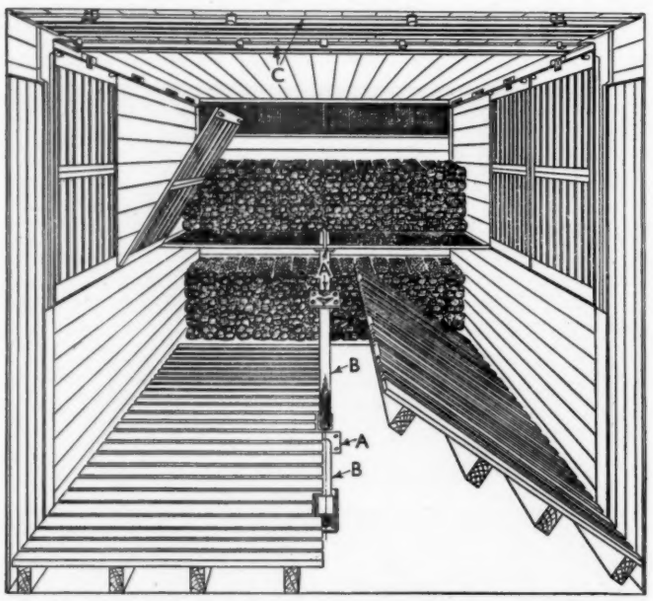


Top: Upper Decks Folded in Their Inoperative Position—Center: One of the Upper Decks Lowered into Load-Carrying Position—Bottom: One End of the Car with All the Upper Decks in Load-Carrying Position and with the Doorway Gates in the Bracing Position

these gates are lowered in doorpost slides to a position at the doorway end of the upper deck.

The illustrations show the upper-deck racks in their inoperative position, set into car wall recesses; the upper-deck racks lowered into load-carrying position; and the end of car from the doorway with all of the upper-deck racks at one end lowered to their load-carrying position with the doorway gates in the bracing position.

This type of car has been found satisfactory for commodities and containers susceptible to crushing damage by pressure of upper layers of the load. During recent years there has been a demand by the retail trade for oranges and grapefruit in small mesh bags containing



Construction of the Double Decks Showing Some Upper Racks in Place for Loading and Others Raised

from 5 to 8 lb. per package. Fruit packed in mesh bags at shipping points and loaded in standard cars had to be stowed fourteen layers high in the cars in order to obtain the carload minimum; therefore, under this plan of handling, some crushed fruit was found. Since the double-deck cars have been used for this type of lading, crushing damage has been minimized.

In addition to carrying consumers packages satisfactorily, the double-deck cars have also been found useful for shipping candy and bakery products which are loaded in bulky and rather fragile paper cartons, and therefore susceptible to crushing. The cars have been found especially advantageous for shipping mixed vegetables from points where full carloads of the same vegetables are not available on the same day, or where shipments of the same vegetables are too small to fill a car. Vegetables that require stowing in contact with ice can be placed on the floor racks and shipped in the same car with fruits or vegetables that suffer damage when coming in contact with water or ice, by using the upper deck to separate the lading as required. It is also possible to load a different kind of fruit or vegetable packed in different kinds of containers, stowed in each of four compartments, thus enabling receivers to unload some of any of four different commodities without disturbing the balance of the load.

These double-deck refrigerator cars are in service of the Fruit Growers Express Company the Western Fruit Expess Company, the Burlington Refrigerator Express Company, and the National Car Company.

Republic Steel Corp. Opens New Wire Mill

(*Continued from page 790*)

vidual lanes are provided and a broadside transfer conveyor, holding 13 rod lifts of 3,600 lb. each, is located near the center of the yard where it conveys the rods directly into the cleaning house.

The building containing the latter facility is of acid-resisting construction throughout and embodies glass brick in place of conventional windows. The cleaning line consists of three reinforced concrete acid-proof brick-lined cleaning tanks, a rinse tank, three sull tanks and three lime tanks. Acid is stored in two 8,000-gal. tanks and is fed by gravity to two measuring tanks. The cleaning tanks are heated by jets, and spent acid is discharged from the tanks by a syphon in each tank.

Located between the cleaning and wire-drawing departments is the rod baker. This unit is of the modern two-lane type, is fired indirectly with natural gas and is equipped with automatic temperature control. The rods are advanced through the baker in conveyors. After a lift of rods is deposited on one of the conveyors an electric push button is pressed, which causes the vertical doors at each end of the baker to open, advances the conveyor one step and closes the doors. At the discharge end of the conveyor the rods are removed by an electric lift truck on a specially-designed demountable ram and are delivered to a ram rack immediately behind the wire-drawing machines. At this point the rod coils are butt-welded for continuous drawing and are flipped direct from the rams to the wire-drawing machines.

The drawing equipment consists of eleven wire-drawing machines, including three continuous machines for four, five, or six-draft wire, four continuous machines for three-draft wire, and four double-deck machines for one and two-draft wire. The drawing speeds range up to 1400 ft. per min. for .0625 wire drawn from a rod .207 in. in diameter. Water-cooled tungsten carbide dies are used on all wire-drawing machines. These machines are serviced by high-speed tramrail hoists which strip the wire from the drawing blocks and deposit it on specially-designed racks mounted on corrugated steel skids which are transferred to the storage, nail or galvanizing departments by electric lift trucks.

On arriving in the galvanizing department, the coils of wire are placed on pay-off reels (of which there are 80). Extending from these reels 40 strands of the wire are first normalized in a pot of molten lead and then pass through cleaning and rinsing tanks, which extend for a distance of 70 ft. Thence they enter the electro-galvanizing tank. This tank is 140 ft. long, 6 ft. wide and 2 ft. deep and requires approximately 43,000 gal. of solution. Thirty tons of zinc anodes are immersed in this solution in the bottom of the tank, while the wires, functioning as cathodes, pass through the solution slightly below the surface at speeds ranging from 35 to 70 ft. per min., depending on the coating to be applied. It is possible to deposit on the wire 27 successive coatings of zinc that is 99.9 per cent pure. After passing out of the tank the galvanized wire is rinsed and dried before it is wound on the take-up reels.

The field fence department consists of three woven field-fence machines and one poultry fence machine, all of which are of the wrap-stay type, while the nail making equipment consists of 4 sets of 14 machines, or a total of 56 machines, producing a complete range of sizes. Fifteen machines are provided for making barb wire, 12 of which are for making two-point cattle or hog wire, while 3 are for making four-point wire.

Loomis Resigns L. V. Presidency

Becomes chairman of board and is succeeded by Duncan Kerr, heretofore assistant to president

EDWARD E. LOOMIS, president of the Lehigh Valley, on May 5 resigned that position and was elected chairman of the company's directorate and of its executive and finance committees, and Duncan J. Kerr, heretofore assistant to the president, was elected to the presidency.

Mr. Loomis was born in Herkimer county, New York, and holds the degree of LL.D. from Lafayette College. He entered railway service in the law department of the Denver & Rio Grande and in 1894 became superintendent of the Tioga division of the Erie, serving also as superintendent in charge of subsidiary coal and lumber interests. In 1898 he was appointed general superintendent of the New York, Susquehanna & Western and the Wilkes-Barre & Eastern (both Erie subsidiaries) and in the following year became superintendent of the coal mining department of the Delaware, Lackawanna & Western. In 1902 he was appointed senior vice-president and was elected to the board of managers of the Lackawanna.

In 1917 he was elected to the presidency of the Lehigh Valley. He has also served for many years as chairman of the Committee on Public Relations of the Eastern Railroads and is on the directorate of many companies, among them the Great Northern (of which he is also a member of the executive committee), American Telephone & Telegraph Company, the American Can Company, the American Surety Company and the New York Trust Company.

Mr. Kerr was born on December 3, 1883, at Glasgow, Scotland, and was graduated from the University of Glasgow in 1904 with degrees as Bachelor of Science and Civil Engineer. He came to America in the same year and, in November, entered the engineering department of the Pennsylvania. Five years later he went with the Chicago, Milwaukee & Puget Sound (now Chicago, Milwaukee, St. Paul & Pacific) and from 1910 to 1913 was in the service of the Oregon Trunk and the Spokane, Portland & Seattle. In the latter year he joined the staff of the Great Northern and subsequently was appointed office engineer, thereafter being promoted to corporate engineer and, still later, to assistant to vice-president in the executive department.

On December 1, 1920, Mr. Kerr became assistant to vice-president in charge of operation of the Great Northern and remained in that post until his appointment as assistant to Mr. Loomis in June of last year. While with the Great Northern, Mr. Kerr also served as president of two of that company's coal and lumber subsidiaries.

The Lehigh Valley under Mr. Loomis' administration

Blank & Stoller

Edward E. Loomis

Duncan J. Kerr

came safely through the depression and appears now to be on the road to better times. In 1936 the Lehigh had net income of $1,323,825, as contrasted with a deficit of $1,843,801 in the preceding year. Net railway operating income in 1936 was almost nine millions, as compared with less than five millions in 1935. The road recently has discharged its indebtedness to the Reconstruction Finance Corporation, having secured a 3-year loan of $5,000,000 from bankers at 2½ and 3 per cent which enabled it to pay its loan from the government agency—incidentally thereby effecting a saving in interest, since the R.F.C. loans bore the rate of 4 per cent.

The road has lately been steadily improving its operating performance. In 1936, it increased its average cars per freight train to 51.8 (from 48.9 in 1935). Net tons per train increased from 799 to 897 and gross ton-miles per train-hour mounted from 34,463 to 36,484. This latter factor has continued to improve in 1937 and is currently averaging about 40,000. An outstanding characteristic of the road's operations throughout the depression has been its intensive use of a compact fleet of modern high-speed freight power to maintain schedules and keep down the costs of its merchandise freight service. Anthracite, of course, is the Lehigh's most important source of freight traffic—and the present outlook seems to be, on the whole, favorable to that commodity. It seems scarcely likely that loss of the business may prove as serious a factor in the years ahead as is has in the past.

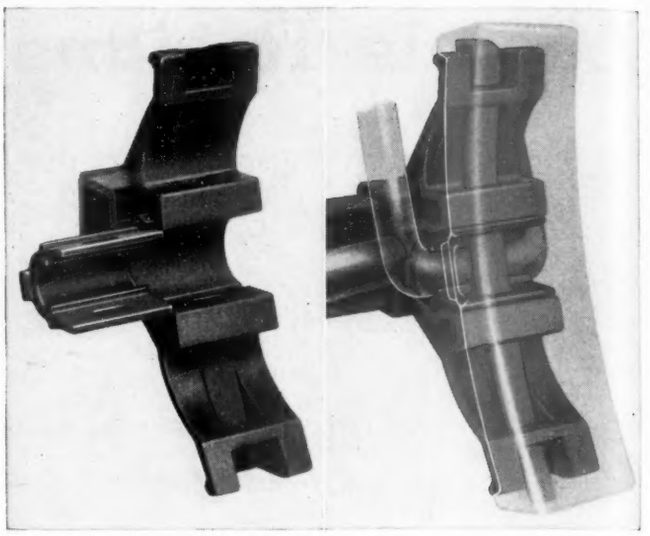
The new president comes to the Lehigh with the bulk of his experience on Northwestern lines. An alumnus of the Great Northern organization, he is, not unnaturally, an admirer of the precepts left behind by James J. Hill, the "Empire Builder." That is to say, in constant improvement of a railway property, Mr. Kerr believes that its freight-moving efficiency should be the first consideration, and hence that grade and curvature improvement must be sought constantly. He admires the minimum of helper mileage which the Great Northern shows, and is a believer in the effectiveness of locomotives designed to meet the particular requirements of individual railroads, as well as in grade revision, as a means of attaining such a goal. Incidentally, with all his interest in maximizing railroad haulage efficiency, Mr. Kerr is no stranger either to high-speed movement of relatively light and valuable traffic; he was intimately associated with the G.N.'s record handling of silk business in the hey-day of that traffic.

Economy Brake Head and Wear Plate

BRAKE-HEAD wear is accentuated by modern high operating speeds, developing first on the shelf where the shoe lug bears and then on the hanger eye. It follows that toe wear develops as soon as the lower shelf is worn so that the shoe drops and cuts into the toes.

To meet this condition, the Illinois Railway Equipment Company, Chicago, has developed and is now marketing the Economy brake head and wear plate illustrated, in which a renewable wear-resisting drop-forged steel plate takes all shoe lug and hanger wear. Tapered splines on the top and bottom of the plate provide a tight press fit in the head. An extended lug on the plate bearing against the tension rod locks the plate in the head when the beam is assembled.

This construction is said to make the brake head last indefinitely and to meet A.A.R. specifications as an approved alternate standard. It assures reliable brake head performance at substantially reduced overall cost.



Drop-forged Steel Wear Plate, Before and After Application in the Economy Brake Head

Odds and Ends . . .

Ticket Refund

What may be the record ticket redemption was made recently when the Chicago & North Western gave a $2.74 refund to F. D. Kimball of Janesville, Wis., for an unused ticket purchased on August 21, 1882.

Father and Son

A son succeeding his father in an official railroad position is rather unusual, but it occurred recently on the Louisville & Nashville, when Marion B. Harlan succeeded his father, John B. Harlan, as chief of the railway's police department. The elder Harlan headed the department for 43 years prior to his recent death.

Utmost Efficiency

All railway police departments have an efficiency record that far excels anything the municipal police can do, but the record of M. Welsh, chief special agent for the Chesapeake & Ohio, is quite outstanding. In 1936, his agents arrested 5,977 persons for various causes, and convictions were obtained in 99.9 per cent of the cases.

Railroading King

Gus Phillips, engineman for the Union Pacific, and a native of Bulgaria, has been mentioned previously in these columns as a friend of the railroading king of Bulgaria. Recently King Boris sent Phillips an elaborate present for Christmas, and, not to be outdone, Phillips sent the king a four-car, streamlined model train with 25 ft. of track, as a birthday present.

Peculiar Accident

Whatever the other hazards of standing at a bar drinking a cocktail may be, one certainly would hardly expect to be hit in the pants by a box car while so engaged. Yet that is what happened to Martin Ward of Peabody, Mass., who suffered back and leg injuries on March 12, when, as the result of a switching accident on the Boston & Maine, a freight car let the rails, plunged into the saloon and pinned Ward against the bar.

Communications and Books . . .

The Railway Age cannot publish letters from readers who do not supply their names and addresses. Names of correspondents are not published, or disclosed even upon inquiry, unless the correspondent consents. But they must be given us as an evidence of good faith.

Boy Scouts Travel by Rail

PATERSON, N. J.

TO THE EDITOR:

As a Boy Scout leader for many years, and as a Scoutmaster and Cub Leader of a group of over 100, I was very much interested in the article on page 711 of the April 24 issue of the *Railway Age*.

We have found that our boys are all interested in trains and wherever possible make all Troop trips by rail. If the popular Sunday excursions could be held on Saturdays also they would draw large numbers of scout groups.

Our own delegation to the Washington Jamboree will travel by train.

A. H. DURIEUX,
Scoutmaster, Troop 13.

Time Rules Transport

TO THE EDITOR:

I notice in reading excerpts from the article "Time Rules Transport," by L. K. Sillcox, appearing in the April 17 issue of the *Railway Age*, page 676, under "Air Resistance and Streamlining," it appears that the first line of the paragraph "the force required to overcome the total air resistance of a steam locomotive, etc." is incorrect and the word "air" should have been omitted.

W. B. WHITSITT,
Mechanical Engineer, Baltimore & Ohio.

[Mr. Sillcox's statement in his paper read: "The force required to overcome the total resistance of a steam locomotive alone increases about two-thirds between 40 and 60 m.p.h. and slightly over one and one-half times between 40 and 80 m.p.h." The use of the term "air resistance" in the *Railway Age* abstract is incorrect, as Mr. Whitsitt states.—*Editor*]

Regulating Vehicles Does Not Make Competition Fair

CHICAGO.

TO THE EDITOR:

In touching upon the subject of unfair competition, it is hardly necessary to emphasize the fact that since 1887 our railroads, though privately owned, are in effect publicly controlled, so much so that it is an easy step in governmental policy to abolish once for all this semblance of privately owned and managed railroads. Government ownership is an ever-present threat. The public has never been willing to stand by and let the railroads "go out of business," and in times of depression the perennial opinion gains ground that if private ownership were in danger of being unable to carry on, then the government must do so.

Complete government ownership, then, will come when private management will not be able to carry on. That will not prove to be a solution: no costs will be evaded, however much they may be disguised or hidden. The only solution is the adoption of a constructive national policy that will eliminate unfair competition on the part of the government itself; and to that end a clear understanding of what this entails is essential. The two important competitors of the railroads are the highways (motor carriers) and the waterways (on lake, river, and ocean). The airways are in the experimental stage, and the pipe lines have but a limited effect. The effect of government participation in transportation can clearly be visualized in the comparison of the four divisions of transportation service, viz: rights-of-way (the ground itself), roadways (the railed or surfaced roadways), equipment, and rates, with a consideration of financial responsibility.

Railroad rights-of-way are valued at 3 billion dollars and consist of over 4 million acres, of which 658,000 acres consist of land grants, etc. With the exception of the land grants, which are by no means a subsidy to the railroads but rather are to be considered a prepayment for services to be rendered, this acreage was privately purchased, and all is heavily taxed. Highway rights-of-way cover, roughly, 20 million acres of rural roads and city streets, governmental owned and, therefore not taxed. Waterway rights-of-way are, of course, free to the public and not taxed. Roadways of railroads were constructed and are maintained by private capital, heavily taxed. Highway roadways are governmental owned, untaxed, and were constructed by and maintained by gasoline taxes and motor licenses with a considerable balance made up by general taxation. Railroad equipment is privately owned and maintained, and bears a tax. Highway equipment, with the exception of a large number of government-owned vehicles, are in the same category as railroad equipment but pay a nominal tax. Waterway equipment, privately owned, is ineffectually taxed; but in this field is the equipment of the Federal Barge Line, government-owned and not taxed. With respect to rates, the railroads find theirs strictly regulated; the highway rates are only partially regulated, while the waterways have no regulation over port-to-port rates. Under the Denison Act the railroads are even forced to join in rates originating with government-owned water carriers.

From the foregoing it is quite apparent what is meant by "unfair competition." While the passage of the Motor Carrier Act was a tardy recognition of the increasing need for a consistent policy, national in scope, there was no relief for the railroads, for, from their point of view, nothing is gained by applying restrictive measures bearing an attenuated resemblance to their own restrictions to even a part of the motor carrier business. A national policy would contemplate a fairer apportionment of taxation. In this way the public would not be misled in believing it was getting cheap water transportation and the motor carrier would assume, aside from license and gasoline taxes, a more proportionate share of the cost of construction as well as the maintenance of our highways.

WILLARD COLE.

New Book

The Cape-To-Cairo Dream, by Lois A. C. Raphael, Ph.D. 514 pages, 6¼ in. by 9¼ in. Bound in cloth. Published by the Columbia University Press, New York. Price $4.50.

In this definitive analysis, the author surveys the entire scene of British imperialist activities in Africa during the career of Cecil J. Rhodes. She interprets the Cape-to-Cairo railway project largely as a sentimental dream of colonial-expansionists and a wedge for opportunists in their efforts to "paint the map of Africa red." In support of her thesis, Miss Raphael makes use of the opinions of several experts in the railroad field, chief of whom is Colonel Prout, editor of the Railroad Gazette from 1887-1903. While he realized the imaginative sweep of the dream of a vertical continental rail line, the Colonel criticized its gigantic size and probable scarcity of revenue. In company with many other experts whom Miss Raphael quotes, he suggested that short lateral lines from the east and west coasts of the continent might be more profitable and adequately fill the needs. In conclusion, the author asserts that the Cape-to-Cairo dream as a "ridge-pole" of British African territorial holdings is definitely dead and any further railway building on the Dark Continent must contribute to an international Cape-to-Cairo system.

NEWS

A.A.R. Okays Ads For Another Year

Public relations work to be continued—Pension tax boost accepted

A revised employee retirement plan and a $1,221,134 public relations and advertising budget were approved by the Association of American Railroads at a meeting in Chicago on April 29. The revised retirement plan provides for a graduated scale of payroll taxes divided equally between employers and employees, starting at 5½ per cent on January 1, 1937; 6 per cent on January 1, 1940; 6½ per cent on January 1, 1943; 7 per cent on January 1, 1946; and 7½ per cent on and after January 1, 1949. In the first plan agreed upon by the railways and the labor unions, the rate was 5 per cent for the first three years, 1937 to 1939; 5½ per cent for the next three years, 1940 to 1942; 6 per cent for the next three years, 1943 to 1945; 6½ per cent for the next three years, 1946-1948; and 7 per cent on and after January 1, 1949.

The budget approved provides for the continuation of the public relations plan adopted in 1936. The program, which will run for 12 months beginning June 1, 1937, provides for advertising in general, farm and business magazines and railroad and labor publications, and an expansion of the several services performed by the association.

In keeping with this program, the "Vocafilm" service staff has in production two additional "Vocafilm" presentations, one dealing with the public relations program and intended for showing to the public; and the other dealing with friendliness in railway service. Members of the staff of the Window Display service are making studies to develop a method for handling this medium of advertising which will obtain the widest possible distribution of window display material. The Station Exhibit service staff has made a study of the advertising and publicity possibilities of portable exhibits for use in railroad stations and present plans call for the production of a series of these exhibits for display in the larger terminals and subsequently for other points throughout the country. The staff of the Speakers service is now preparing a new speaker's manual which will subsequently be kept up to date by the addition of pages dealing with new developments effecting railroads.

Direct Mail service this year will include the continued mailings of material of sufficient importance to the association's list of 700,000 names; the further development of special lists to which appropriate material can be mailed; and the production and distribution, in addition to reprints of speeches and articles and similar "ready-made" material, of a series of direct mail pieces interpreting the railroads and railway developments in terms interesting and familiar to the particular groups addressed.

Five major projects are being given consideration by the association staff. While no definite plans were submitted at the meeting, radio, motion pictures, an annual railroad show and an exhibit train were recommended to the membership. In the meantime, several broadcasting plans are being studied. The possibilities of production and the opportunities for distribution of motion pictures are being examined under three headings: (1) Industrial films for schools, lodges, and similar organizations, (2) commercial "shorts" for release through regular motion picture channels and (3) a full length motion picture with a background of railroad material for theatrical distribution. An annual railroad show is being considered and arrangements are now under way to co-operate with the railway supply companies in the June exhibit at Atlantic City. It was suggested that exhibits prepared by railroads for the New York and San Francisco fairs may provide a nucleus for an annual railroad show. The possibilities of an exhibit train are being examined as an activity co-ordinated with a radio program, and a report will be made later.

Wheeler Probe Reopens

Senator Wheeler's investigation of railway finances was scheduled to resume public hearings on Thursday afternoon of this week. Witnesses called to appear included Robert R. Young, Frank F. Kolbe and Allan P. Kirby, recent purchasers of control of Midamerica Corporation, top holding company of the so-called Van Sweringen railway set-up.

Mexico Cuts Freight Rates from U. S.

The National Railways of Mexico has reduced freight rates on thirty groups of products shipped from the United States into Mexico, the reductions ranging from 30 to 50 per cent on these items, including building materials and machinery, electrical machinery, home appliances, tools, paints, structural iron products, machinery, groceries, glass, soap grease and cereal foods.

Missouri Pacific Hearing Resumed

Evidence on Gulf Coast Lines presented at Washington sessions this week

Hearings on the Missouri Pacific reorganization plans were resumed on May 4 before Commissioner Meyer and Examiners Sweet and Jewell with witnesses for the Gulf Coast Lines bondholders testifying that the Gulf Coast Lines' earnings had been misrepresented by improper accounting methods of the Missouri Pacific management and inequitable charges for car hire and equipment use. These bondholders are attempting to show that they should get a larger portion of the new securities which will be issued in the reorganization of the Missouri Pacific. N. B. Ballantine, transportation analyst, appearing for the G. C. L. bondholders, presented exhibits which purported to show that the Missouri Pacific had overcharged the Gulf Coast Lines for the use of certain equipment with the result that the balance sheet would give an unfair picture of the earning power of the Gulf Coast Lines. During cross examination by counsel for the Missouri Pacific, he went into great detail in an attempt to explain how he computed the rental per day of locomotives.

E. D. Scruggs, representing the Saving Bank Trust Company of New Orleans, told the commission that the new basis for division of joint rates between the east and southwest which was prescribed by the commission last summer will increase the revenues of the Gulf Coast Lines by $400,000 annually.

William Wyer, secretary-treasurer of the Missouri Pacific, occupied the stand on May 5, and sharply criticised the testimony of Mr. Ballantine, pointing out that in his computation of costs of repairs to equipment and in his determination of locomotive rentals, he had omitted important facts which would have greatly changed the results that he obtained.

E. G. Trobaugh, car accountant for the Missouri Pacific explained the adoption on July 1, 1936, of a new method for per diem settlement in connection with car use. He offered an exhibit which showed that had the new basis been in effect during 1932, 1933, and 1934, the Gulf Coast Lines would have paid an average of $109,021 less a year for car hire. This figure compares with the claim by the Gulf Coast Lines that during these three years they were overcharged annually $235,000.

$146,174,646 Net for Three Months

2.93 per cent return compares with 2.09 per cent in first quarter of 1936

Class I railroads of the United States in the first three months of 1937 had a net railway operating income of $146,174,646, which was at the annual rate of return of 2.93 per cent on their property investment, according to the Bureau of Railway Economics of the Association of American Railroads. In the first three months of 1936, their net railway operating income was $104,443,348 or 2.09 per cent, and in the first three months of 1930 it was $173,060,112 or 3.48 per cent. Gross operating revenues for the first three months of 1937 totaled $1,031,424,198 compared with $907,746,828 for the same period in 1936, and $1,316,100,042 for the same period in 1930, an increase of 13.6 per cent above 1936, but 21.6 per cent below 1930. Operating expenses were $764,082,380 compared with $704,163,110 for the same period in 1936, and $1,026,147,037 in 1930—8.5 per cent greater than in 1936, but 25.5 per cent below 1930.

CLASS I RAILROADS — UNITED STATES

Month of March

	1937	1936	1930
Total operating revenues	$377,812,795	$308,258,178	$447,314,318
Total operating expenses	266,271,766	236,546,606	347,107,974
Taxes	31,581,791	25,888,925	29,578,207
Net railway operating income	69,379,328	35,152,477	60,046,885
Operating ratio—per cent	70.48	76.74	77.60
Rate of return on property investment—per cent	3.47	1.76	3.02

Three Months Ended March 31

	1937	1936	1930
Total operating revenues	$1,031,424,198	$907,746,828	$1,316,100,042
Total operating expenses	764,082,380	704,163,110	1,026,147,037
Taxes	88,917,811	68,760,721	86,757,597
Net railway operating income	146,174,646	104,443,348	173,060,112
Operating ratio—per cent	74.08	77.57	77.97
Rate of return on property investment—per cent	2.93	2.09	3.48

Class I roads in the first three months of 1937 paid $88,917,811 in taxes compared with $68,760,721 in the same period in 1936, and $86,757,597 in the same period in 1930. For March alone, the tax bill amounted to $31,581,791, an increase of $5,692,866 or 22 per cent above 1936.

Eighteen Class I roads failed to earn expenses and taxes in the first three months of 1937, of which 8 were in the eastern district, and 10 in the western district.

For March alone the net railway operating income was $69,379,328, at the annual rate of return of 3.47 per cent. The March, 1936, net railway operating income was $35,152,477 or 1.76 per cent, and in March, 1930, it was $60,046,885 or 3.02 per cent. Gross operating revenues for March amounted to $377,812,795 compared with $308,258,178 in March, 1936, and $447,314,318 in March, 1930. Operating expenses totaled $266,271,766 compared with $236,546,606 in the same month in 1936, and $347,107,974 in March, 1930.

Class I roads in the eastern district for the first three months in 1937 had a net railway operating income of $93,514,979—a return of 3.94 per cent. For the same period in 1936, their net railway operating income was $71,187,736 or 3.00 per cent, while in 1930 it was $97,348,395 or 4.22 per cent. Gross in the eastern district for this year's first three months totaled $528,857,953, an increase of 12.6 per cent compared with 1936, but a decrease of 20.2 per cent compared with 1930. Operating expenses totaled $375,594,292, an increase of 7.1 per cent above last year, but a decrease of 26.5 per cent under 1930. For March this district reported a net railway operating income of $42,561,235 compared with $19,185,543 in March, 1936, and $32,182,039 in March, 1930.

Class I roads in the southern district for the first three months of 1937 had a net railway operating income of $22,992,341, at the rate of 2.75 per cent; for the same period in 1936, their net amounted to $17,166,920, or 2.05 per cent, and in 1930 it was $24,914,286 or 2.85 per cent. Gross in the southern district for the first three months amounted to $137,690,810, an increase of 13.2 per cent compared with 1936, but a decrease of 22.8 per cent under 1930. Operating expenses totaled $99,445,052, an increase of 7.5 per cent above 1936, but a decrease of 28.4 per cent under 1930. The southern district's net railway operating income for March was $11,752,756 compared with $7,131,540 in March, 1936, and $9,262,673 in March, 1930.

Class I roads in the western district for the first three months in 1937 had a net railway operating income of $29,667,326, which was at the rate of 1.66 per cent. For the same three months in 1936, they had a net railway operating income of $16,088,692, or 0.90 per cent, and for the same period in 1930 it was $50,797,431 or 2.84 per cent on investment. Gross in the western district for the three months' period amounted to $364,875,435, an increase of 15.3 per cent above the same period in 1936, but a decrease of 23.2 per cent under 1930. Operating expenses totaled $289,043,036, an increase of 10.7 per cent compared with 1936, but a decrease of 23.1 per cent under 1930. For March alone, the net railway operating income of this district was $15,065,337 compared with $8,835,394 in March, 1936, and $18,602,173 in March, 1930.

Frisco Moves New York Office

The Frisco this week removed its New York freight and passenger office to new quarters in Rockefeller Plaza, Rockefeller Center.

I. C. C. Honored by Chicago Club

Luncheon meeting Commemorates regulatory body's 50th anniversary

A luncheon in honor of the Interstate Commerce Commission's fifty years of impartial and efficient service in the administration of the Interstate Commerce Act was held by the Traffic Club of Chicago on April 29. Carriers, practitioners and shippers paid tribute to the members of the Commission and their record, Carl R. Gray, president of the Union Pacific and Elmer A. Smith, general attorney of the Illinois Central, speaking for the carrriers, and Luther M. Walter of the law firm of Walter, Burchmore & Belnap and C. E. Hochstedler, traffic director of the Chicago Association of Commerce, speaking for the practitioners and shippers. The Hon. Clyde B. Aitchison, member of the Interstate Commerce Commission, responded for that body.

Mr. Gray, whose railroad career began four years before the Commission came into existence in 1887, said that at the age of 19 he had more authority as a minor traffic officer than all of the presidents of the railroads have today. Great apprehension prevailed, he said, when the railroads saw the "menace" of the Commission approaching, and the railroads feared its regulation much in the manner that the trucking interests now fear control of their business. Yet it was evident that the conditions prevailing before the Commission was created would have destroyed the railroads. The Commission's activities have not only prevented this disaster but have so aided the railroads that no railroad man today would care to go back to the days of 1880. He felt that the same conditions exist in the trucking business today and that while the Motor Carrier Act punishes as well as protects, it will be beneficial to motor carrier interests since the Commission can be relied upon to issue fair decisions.

Mr. Smith paid tribute to Commission methods, saying that they had contributed to the supremacy of the law in newer types of conflicts and controversies. The procedure of the Commission, he said lifted economic controversies out of the realm of disorganization and put them under the sphere of law.

Mr. Walter urged opposition to the proposed reorganization of the Interstate Commerce Commission which would make that body subject to political maneuvering. He called upon members of the audience to exert their influence to forestall the move which would give the President control over the Commission through the secretary of commerce.

Mr. Hochstedler said that shippers should have a feeling of gratitude toward the Commission because by its liberal rules of practice it is easy for them to have their transportation problems considered. Under the Commission's procedure the settlement of controversies is less difficult

and expensive than it would be if the Commission should adopt and adhere to the same procedure as is followed by courts. He urged those who appear before the Commission to express their appreciation of the ease of this practice by adhering strictly to the simple rules which have been prescribed and thus render unnecessary the adoption of more rigid and restrictive requirements.

Commissioner Aitchison, in expressing the gratitude of the members for the many expressions of confidence and encouragement which the Commission has received upon its semi-centennial as well as through past years, called attention to the fact that the Commission is the oldest regulatory body with special jurisdiction in any nation. The beginning of the Commission, he said, marked the entry of the federal government upon a wide-scale undertaking where previously it had done nothing. The scheme of Commission regulation, he continued, involved many questions of statecraft and constitutional soundness which were then doubtful in the extreme. The Commission throughout its existence, because of the nature of its problems, has continuously been under public scrutiny and has had intimate contact with each of the three departments of the government. The public has always been vocal; yet where sectional interests and personal ambitions have colored criticism, the issues have not been obscured by partisanship. He also described the crises through which the Commission has passed without being diverted from its true purpose.

C. N. R. Recapitalization Effective

The Canadian National capital revision act was put into operation by government proclamation on May 1. The act has the effect of scaling down the capitalization of the railways by removing duplications between the railways' balance sheet and accounts of the government.

Bureau of Explosives to Consider Amendments

The Bureau of Explosives of the Interstate Commerce Commission announces a conference at the bureau headquarters, 30 Vesey street, New York, on May 19. At that time there will be considered proposals for amendments to the I.C.C. regulations effective October 1, 1930, including those requests received since the conference of January 26, 1937.

Club Meetings

The Pacific Railway Club will hold its next meeting on May 13 at 7:30 p.m. in the Palace Hotel, San Francisco, Cal. At that time there will be presented a group of talks on the construction and operation of the Transbay lines over the San Francisco-Oakland Bridge, by men actively engaged in that endeavor.

The Southern and Southwestern Railway Club's next meeting on May 20 at the Ansley Roof Garden, Atlanta, Ga., at 10 a.m., will feature a paper by R. F. Helmkamp, of the Air Reduction Sales Company, entitled "Machine Gas Cutting Applied to Railroad Problems."

The Traffic Club of Newark, N. J., will participate in a traffic forum on May 10 in the Chamber of Commerce building. The discussion will center around the problems of freight agents.

The May 17 meeting of the Western Railway Club, in the Hotel Sherman, Chicago, will hear a talk by the Honorable E. M. Dirksen, Congressman from Illinois. A reception and dinner will precede the meeting.

Keeshin Stock Issue Authorized

The Interstate Commerce Commission, Division 5, has authorized the Keeshin Transcontinental Freight Lines, Inc., to issue $500,000 of capital stock, consisting of 5,000 shares of no-par founders stock with a stated value of $100 a share—the proceeds to be used to finance acquisitions of truck lines and to provide funds for working capital and advances to subsidiaries. The decision stipulated that no part of the proceeds be used to retire any of the applicant's $1,200,000 of debenture bonds, for the issue of which latter no authorization from the I. C. C. was sought.

$10,324,925 Deficit for First Two Months

Class I railroads for the month of February reported to the Interstate Commerce Commission a net deficit, after fixed charges and other deductions, of $5,726,783 as compared with a net deficit of $11,581,866 in February, 1936, according to the commission's monthly compilation of selected income and balance-sheet items. For the first two months of the year the

SELECTED INCOME AND BALANCE-SHEET ITEMS OF CLASS I STEAM RAILWAYS

Compiled from 137 Reports (Form IBS) Representing 143 Steam Railways

TOTALS FOR THE UNITED STATES (ALL REGIONS)

For month of February 1937	For month of February 1936	*Income Items*	For the two months of 1937	For the two months of 1936
$38,358,633	$33,562,339	1. Net railway operating income	$76,795,314	$69,290,874
10,416,613	10,063,893	2. Other income	21,884,396	22,079,700
48,775,246	43,626,232	3. Total income	98,679,710	91,370,574
1,787,023	1,571,152	4. Miscellaneous deductions from income	3,598,108	3,088,267
46,988,223	42,055,080	5. Income available for fixed charges	95,081,602	88,282,307
		6. Fixed charges:		
10,720,204	10,907,075	6-01. Rent for leased roads	21,444,038	21,945,709
40,671,153	41,478,939	6-02. Interest deductions	81,412,479	83,234,308
238,817	221,100	6-03. Other deductions	465,346	435,481
51,630,174	52,607,114	6-04. Total fixed charges	103,321,863	105,615,498
* 4,641,951	* 10,552,034	7. Income after fixed charges	* 8,240,261	* 17,333,191
1,084,832	1,029,832	8. Contingent charges	2,084,664	2,029,664
* 5,726,783	* 11,581,866	9. Net income†	* 10,324,925	* 19,362,855
		10. Depreciation (Way and structures, and Equipment)	32,308,859	32,164,120
16,123,993	16,044,496	11. Federal income taxes	5,227,042	3,455,459
2,650,230	1,799,767	12. Dividend appropriations:		
		12-01. On common stock	17,270,988	16,609,326
15,218,445	12,995,035	12-02. On preferred stock	3,265,411	3,607,592
2,579,704	2,746,045			

Selected Asset Items	Balance at end of February 1937	Balance at end of February 1936
13. Investments in stocks, bonds, etc., other than those of affiliated companies (Total, Account 707)	$684,079,100	$689,421,560
14. Cash	$516,914,968	$461,410,583
15. Demand loans and deposits	7,693,292	4,189,754
16. Time drafts and deposits	44,492,926	28,331,033
17. Special deposits	161,529,655	72,709,676
18. Loans and bills receivable	2,001,370	2,717,443
19. Traffic and car-service balances receivable	63,481,849	61,663,964
20. Net balance receivable from agents and conductors	56,172,019	46,922,108
21. Miscellaneous accounts receivable	146,178,710	137,634,770
22. Materials and supplies	340,205,563	287,897,984
23. Interest and dividends receivable	24,510,122	27,634,383
24. Rents receivable	1,761,048	2,155,100
25. Other current assets	6,318,512	5,691,850
26. Total current assets (items 14 to 25)	$1,371,260,034	$1,138,958,648
Selected Liability Items		
27. Funded debt maturing within 6 months‡	$201,732,813	$229,635,456
28. Loans and bills payable§	$211,500,739	$310,249,650
29. Traffic and car-service balances payable	85,676,394	75,977,537
30. Audited accounts and wages payable	260,839,467	221,278,929
31. Miscellaneous accounts payable	119,346,341	72,748,816
32. Interest matured unpaid	552,707,534	433,784,401
33. Dividends matured unpaid	1,931,965	17,596,398
34. Funded debt matured unpaid	481,067,864	395,989,903
35. Unmatured dividends declared	15,227,295	17,296,033
36. Unmatured interest accrued	106,972,776	108,054,289
37. Unmatured rents accrued	31,748,064	32,505,652
38. Other current liabilities	26,269,654	21,507,565
39. Total current liabilities (items 28 to 38)	$1,893,288,093	$1,706,989,173
40. Tax liability (Account 771):		
40-01. U. S. Government taxes	$117,445,745	$41,964,541
40-02. Other than U. S. Government taxes	131,386,813	128,540,081

† The net income as reported includes charges of $3,048,791 for February, 1937, and $6,198,220 for the two months of 1937, and $1,432,809 for February, 1936, and $2,841,897 for the two months of 1936 on account of accruals for excise taxes levied under the Social Security Act of 1935; also $4,403,728 for February, 1937, and $8,717,365 for the two months of 1937, and $151,064 for February, 1936, and $151,858 for the two months of 1936 under the requirements of an Act approved August 29, 1935, levying an excise tax upon carriers and an income tax upon their employees, and for other purposes. (Public No. 400, 74th Congress.)

‡ Includes payments which will become due on account of principal of long-term debt (other than that in Account 764, Funded debt matured unpaid) within six months after close of month of report.

§ Includes obligations which mature not more than 2 years after date of issue.

* Deficit or other reverse items.

NET INCOME OF LARGE STEAM RAILWAYS WITH ANNUAL OPERATING REVENUES ABOVE $25,000,000

Name of railway	Net income after deprec. For the two months of 1937	Net income after deprec. For the two months of 1936	Net income before deprec. For the two months of 1937	Net income before deprec. For the two months of 1936
Alton R. R.	$16,752	* $241,961	$75,314	* $187,525
Atchison, Topeka & Santa Fe Ry. System§	468,054	* 1,373,776	2,339,284	515,958
Atlantic Coast Line R. R.	1,929,658	743,202	2,271,668	1,103,170
Baltimore & Ohio R. R.	* 803,214	* 508,429	400,989	728,723
Boston & Maine R. R.	84,770	* 778,115	350,659	* 504,062
Central of Georgia Ry.†	* 371,372	* 571,842	* 240,905	* 443,410
Central R. R. of New Jersey	* 617,347	* 231,433	* 373,069	23,481
Chesapeake & Ohio Ry.	4,042,357	6,901,726	5,411,984	8,307,121
Chicago & Eastern Illinois Ry.‡	* 75,351	* 186,731	21,325	* 86,837
Chicago & North Western Ry.‡	* 3,545,499	* 3,494,209	* 2,718,147	* 2,654,767
Chicago, Burlington & Quincy R. R.	204,451	421,786	1,006,017	1,187,300
Chicago Great Western R. R.‡	* 382,442	* 716,705	* 295,094	* 634,729
Chicago, Milwaukee, St. Paul & Pacific R. R.‡	* 2,918,900	* 3,356,278	* 2,020,460	* 2,456,973
Chicago, Rock Island & Pacific Ry.‡	* 2,519,526	* 3,259,176	* 1,838,591	* 2,539,787
Chicago, St. Paul, Minneapolis & Omaha Ry.	* 844,375	* 686,008	* 745,605	* 586,098
Delaware & Hudson R. R.	* 225,297	* 117,488	* 47,211	70,938
Delaware, Lackawanna & Western R. R.	* 335,941	* 188,802	85,841	257,087
Denver & Rio Grande Western R. R.‡	* 804,942	* 639,004	* 613,271	* 446,068
Elgin, Joliet & Eastern Ry.	261,197	180,481	408,620	331,087
Erie R. R. (including Chicago & Erie R. R.)	* 68,351	* 140,023	567,550	511,122
Grand Trunk Western R. R.	* 378,638	115,431	* 207,018	289,221
Great Northern Ry.	* 2,821,269	* 3,326,149	* 2,217,476	* 2,712,020
Illinois Central R. R.	* 1,720,491	* 412,682	* 657,968	695,898
Lehigh Valley R. R.	* 449,193	* 251,934	* 68,322	133,407
Long Island R. R.	* 767,019	* 374,299	* 571,580	* 176,222
Louisville & Nashville R. R.	188,126	1,101,353	890,150	1,797,946
Minneapolis, St. Paul & Sault Ste. Marie Ry.	* 1,411,194	* 1,396,593	* 1,204,552	* 1,191,933
Missouri-Kansas-Texas Lines	* 93,903	* 636,188	* 196,926	* 422,027
Missouri Pacific R. R.‡	* 1,754,243	* 1,832,813	* 1,025,878	* 1,130,383
New York Central R. R.¶	1,809,457	* 1,092,116	4,471,822	1,604,898
New York, Chicago & St. Louis R. R.	511,356	254,233	780,110	512,804
New York, New Haven & Hartford R. R.‡	* 547,932	* 1,065,792	22,926	* 495,894
Norfolk & Western Ry.	4,533,184	4,772,038	5,308,008	5,518,322
Northern Pacific Ry.	* 1,790,395	* 2,489,843	* 1,253,299	* 1,970,285
Pennsylvania R. R.	2,118,787	2,395,613	6,081,371	5,858,957
Pere Marquette Ry.	30,646	199,659	456,737	624,153
Pittsburgh & Lake Erie R. R.	596,086	475,125	881,472	775,713
Reading Co.	929,782	1,026,438	1,449,793	1,561,138
St. Louis-San Francisco Ry.‡	* 1,487,269	* 1,446,573	* 962,907	* 907,931
St. Louis Southwestern Lines‡	* 257,771	* 161,030	* 156,574	* 59,837
Seaboard Air Line Ry.†	* 441,052	* 1,361,125	* 125,565	* 1,047,920
Southern Ry.	604,060	* 383,846	1,131,573	157,593
Southern Pacific Transportation System‖	379,136	* 1,952,270	1,697,686	* 635,893
Texas & Pacific Ry.	248,206	99,922	443,130	293,991
Union Pacific R. R.	29,141	* 56,951	1,133,173	999,264
Wabash Ry.†	* 219,318	* 413,619	134,454	* 56,458
Yazoo & Mississippi Valley R. R.	* 127,859	* 260,517	* 47,778	* 177,364

† Report of receiver or receivers.
‡ Report of trustee or trustees.
§ Includes Atchison, Topeka & Santa Fe Ry., Gulf, Colorado & Santa Fe Ry., and Panhandle & Santa Fe Ry.
¶ Includes Boston & Albany, lessor to New York Central R. R.
‖ Includes Southern Pacific Company and Texas & New Orleans R. R. The operation of all separately operated solely controlled affiliated companies, resulted in a net deficit of $574,177 for two months of 1937 and $709,085 for two months of 1936. These figures are not reflected in this statement.
* Deficit.

net deficit was $10,324,925, as compared with one of $19,362,855 in the corresponding period of 1936.

Fifty-nine roads reported a net income in February, while 75 reported deficits, and for the two months' period 60 reported net income and 74 net deficits. The consolidated statement and a statement of the net income of the roads having annual operating revenues above $25,000,000 are given in the accompanying tables.

Great Lakes Exposition to Recognize Rail Employees

Employees of the railroads will have their own special days at the new 1937 Great Lakes Exposition, which will open in Cleveland May 29. August 8 has been designated as "Railroad Day," and June 22 set as "Railway Business Women's Association Day." A. F. Whitney, president of the Brotherhood of Railroad Trainmen, will be general chairman of "Railroad Day."

Central of New Jersey to Inaugurate New Sailings on Boat Route

The Central of New Jersey will resume operation of its Sandy Hook route steamers between New York and Atlantic Highlands, N. J., on May 23, marking the beginning of the 77th year of operation. On July 8, two new sailings will be offered,—one a "dinner sail," a round-trip starting late in the afternoon, and the so-called "moonlight sail," with dancing facilities.

Rail Historians and Enthusiasts of Boston to Meet Jointly

George P. Baker, assistant professor of transportation at the Harvard Graduate School of Business Administration, will speak on the "Growth of the New England Railroad System in the 19th Century" at a joint meeting of the Railroad Enthusiasts, Inc., New England division, and the Railway & Locomotive Historical Society, on May 20. The meeting, which will be held in the Boston Public Library, will be open to the public.

Lightweight Train Built for London, Midland & Scottish

The London, Midland & Scottish of Great Britain has completed the first of eleven lightweight trains, designed for long-distance excursion traffic, in which the use of high tensile steel and welding enables a reduction of 55 tons in weight compared with a 10-coach train of standard equipment, or 1.16 hundredweight less per passenger. Each 10-coach train comprises five two-coach units, and, by such articulation, there is a saving of 20 wheels per train.

N. Y. Warehousing Order Postponed

The Interstate Commerce Commission has postponed from June 15 to August 14 the effective date of its order in Ex Parte 104, Part VI, Warehousing and Storage of Property by Carriers at Port of New York. The order requires the roads to cease and desist for practices criticized in the report on the case as having the effect of charging less for warehousing and storage than the cost to the railroads of performing such services.

N.R.A.A. Goes to International Amphitheatre

After meeting for many years at the Coliseum, the National Railway Appliances Association will present its twenty-seventh annual exhibit at the International Amphitheatre, Union Stockyards, Chicago, on March 14-17, 1938. This amphitheatre, which was completed only two years ago, provides larger and more modern facilities than have been available heretofore. The N.R.A.A. will provide adequate free transportation between the A.R.E.A. hotel headquarters and the amphitheatre.

I. C. C. Authorizes Construction of Fusion-Welded Tank Cars

The Interstate Commerce Commission, Division 3, has authorized the construction for experimental service of 55 additional tank cars to be fabricated by the fusion-welding process. The decision grants the application of the General American Transportation Corporation for permission to build 50 such cars for the transportation of petroleum products; that of the E. I. duPont de Nemours & Company for authority to build one for the transportation of nitric acid; and that of the Texas Chemical Company for permission to construct four for the transportation of muriatic acid. Also service restrictions applied to a car previously constructed by the duPont company are removed and no such limitations as to operation between specific points and over specified routes are to be applied to that company's new car.

Steel Night at N. Y. Railroad Club

The New York Railroad Club at its meeting on Friday evening, May 21, will observe United States Steel Night. C. A. Gill, general manager of the Reading, and president of the club, will make the opening remarks, after which J. R. Mills, manager of sales, Carnegie-Illinois Steel Corporation, will act as master of ceremonies. An address on Research Developments in Steel for Railroad Equipment will be made by A. F. Stuebing, railroad mechanical engineer of the United States Steel Corporation. This will be followed by an address on Rail—Recent Tests and Developments, by F. R. Layng, chief engineer of the Bessemer & Lake Erie. Motion picture films will be shown of the manufacture and treatment of rail

and the laying of one mile of experimental welded track on the Bessemer & Lake Erie. The technical program will be followed by several entertainment features.

The New York Railroad Club will sponsor its annual summer outing and golf tournament on Tuesday, June 8, at the Westchester Country Club, Rye, N. Y.

Hours of Service and Safety Rules for Exempt Motor Carriers

The Interstate Commerce Commission will in the next two months hold a series of hearings on rules to be prescribed as to qualifications of employees and safety of operation and equipment of those motor carriers which are exempt from other regulatory provisions of the motor carrier act. The hearings, to be conducted by Examiner R. W. Snow, will be held at New York, May 20; Atlanta, Ga., May 24; New Orleans, La., May 27; Los Angeles, Calif., June 1; Kansas City, Mo., June 7; St. Louis, Mo., June 9; and Chicago, June 11.

C.P.R. Transfers Eastern Offices to Toronto

The headquarters of the Canadian Pacific, Eastern lines, operating department are now located at Toronto, Ont., the office of the vice-president announces. The transfer from the former headquarters at Montreal, Que., was effective on May 1. The following officers with their staffs will be involved in this transfer: H. J. Humphrey, vice-president and general manager; J. E. Beatty, engineer of maintenance of way; George Whiteley, superintendent of motive power and car department; C. O. McHugh, superintendent of transportation.

Erie To Run "Mystery" Excursion

The Erie has announced a "mystery scenic railroad trip" to be run from New York, Sunday, May 23. According to the brief facts presented, the trip will cover 210 miles through northern New Jersey and southern New York, for the most part over lines where scheduled passenger runs do not operate, and so arranged that no part of the route will be covered twice.

Sponsored by the Model Engineers Railroad Club of North Jersey, the Model Craftsman Magazine, and the Erie, the train will leave Jersey City, N. J., at 9:30 a. m. and, en route, will make several stops for the convenience of camera enthusiasts.

The Canadian Roads in March

An increase of $2,161,271 in operating revenues and an increase of $820,847 in net operating revenue for March, 1937, as compared with March, 1936, is shown in the monthly statement of the Canadian National.

Operating revenues in March were $16,631,981, as compared with $14,470,710 for the corresponding month of last year. Operating expenses were $14,869,601, against $13,529,177 for March, 1936. Net operating revenues were $1,762,380, as compared with $941,533 for March, 1936.

For the three months ended March 31, there was an increase in operating revenues of $4,697,418 over the similar period of last year totaling $44,977,189, as against $40,279,771. Operating expenses $42,659,693, against $40,203,030 for the quarter period of 1936. Net operating revenue for the three months, $2,317,496, compared with $76,741 for the corresponding period of last year, showing an increase of $2,240,755.

The Canadian Pacific had March net operating revenues of $1,738,164, an increase of $390,430 over the $1,347,733 reported for the same month of 1936. Gross was $1,068,812 higher at $11,748,389.

For the first quarter of the year, the company's gross earnings showed an increase of $2,383,088 to $31,667,081, while expenses rose by $1,568,378 to $28,024,668, leaving net operating revenues for the quarter at $3,642,413, an increase of $814,709 over the $2,827,703 reported for the like period of 1936.

Activities of Railroad Enthusiasts

The next meeting of Railroad Enthusiasts, Inc., New York division, will be held on May 21 in Room 2726, Grand Central Terminal, at 7:45 p. m. The program will feature the Canadian Pacific, with a speaker and movies.

Potomac Yards, Virginia, is the objective of the next trip scheduled by the Railroad Enthusiasts, Inc., the New York and Philadelphia divisions combining to make this inspection on Sunday, May 23, by B. & O. The train, carrying special equipment, will leave Jersey City at 8:42 a. m. (E. S. T., and the party will have more than four hours to spend in and about Potomac Yards. The round trip fare will be $3.75.

B. & O. Exhibits Models

The Baltimore & Ohio has opened a model railroad exhibition in the Museum of Science and Industry, Rockefeller Center, New York. Model counterparts of "The Royal Blue," which took first and second prize respectively in the recent model train contest jointly sponsored by the railroad and the publication, "Model Craftsman," feature the collection. The winner of the blue ribbon is to be permanently displayed in the Smithsonian Institute; the second prize winner may be seen in operation on the three track miniature right-of-way, which conforms in signaling and track layout to the Cumberland division of the B. & O. Scale models of bridge span types, including the Howe and Bollman trusses, are on display, together with miniature replicas of famous locomotives and trains and model representations of modern motive-power and cars.

British Rail Unions Post Wage and Hour Demands

The three chief rail workers' unions of Great Britain (the National Union of Railway Men, the Railway Clerks Association and the Associated Society of Locomotive Engineers and Firemen) have presented to the principal railways a set of new wage claims, the "Railway Gazette" (London) reports. Chiefly, they seek the restoration of reductions involved in the so-called "economy cuts," at present amounting to 1¼ per cent on all earnings. In addition, the enginemen have made claims for the restoration of the standard rates of pay operative prior to March 5, 1931, for night and Sunday duty.

Beyond these restoration demands, the N. U. R. has asked that a minimum rate of wages for adult employees be set at 50 shillings (approximately $12.50) per week. Regarding vacations and reduction of hours, the enginemen demand an annual two-weeks' holiday, with full pay, and one day's leave with pay for each Sunday spent on duty, and the clerks, the only union making claims regarding weekly hour scales, seek a 36-hour week, with the abolition of so-called "split turns." Requisitions for extra payment (not yet determined), for duty between 6 p. m. and 6 a. m., and extra vacations in lieu of holiday duty are appended to the clerks' claim. According to the "Gazette," meetings between the union representatives and railroad officers will shortly be arranged.

P.R.R. Represented on European Research Tour

R. C. Harris, general storekeeper of the Pennsylvania at Philadelphia, Pa., will join a group of industrial executives and bankers from the United States this summer in a tour of European research laboratories, according to an announcement from the National Research Council, New York.

Sailing on May 19 from New York City, the group will spend six weeks visiting scientific and industrial research laboratories in England, France and Germany, representing eighteen major fields of industry. The tour is under the direction of Maurice Holland, director of the council's division of engineering and industrial research.

St. Louis Traffic Club Elects

The following have been elected officers of the Traffic Club of St. Louis for the ensuing year: President, James J. Hoban, traffic manager of the Hunter Packing Company, East St. Louis, Ill.; vice presidents, William Bergman, district manager of the National Car Loading Company; Frank Mullivan, vice president of the Cruden-Martin Manufacturing Company; C. B. Sudborough, assistant vice president of the Pennsylvania; Edward F. Ledwidge traffic manager of the Granite City Steel Company, and Harry L. Hammill, general agent of the Chicago & North Western; secretary, C. S. J. Flood, assistant freight manager of Anheuser-Busch, Inc.; and treasurer, George W. Nuedling, general agent of the Kansas, Oklahoma & Gulf.

More Short Lines Exempt from Passenger-Fare Order

The Interstate Commerce Commission has issued a third supplemental report in the passenger fare case, exempting a number of additional short-line roads and branch lines from the requirements of the general fare reduction order of June 1, 1936. The lines, which are permitted to maintain their fares on bases higher than the prescribed two-cents-per-mile coach rate and the three-cents-per-mile Pullman rate are the City of Prineville; the Lufkin, Hemphill & Gulf; the Maxton, Alma

& Southbound; the Midland Terminal; the Tuskegee; the White Sulphur Springs & Yellowstone Park; and the San Diego & Arizona Eastern. In the case of the latter it was stipulated that the rate basis on its lines in the United States shall not exceed 2.3 cents per mile in coaches and 3.5 cents per mile in Pullmans.

Equipment Depreciation Orders

The Interstate Commerce Commission in a series of sub-orders in No. 15100, Depreciation Charges of Steam Railroad Companies, has prescribed depreciation rates applicable to the equipment of six roads. They are the Atlantic & Yadkin; the Indianapolis Union; the New York, New Haven & Hartford; the Pittsburgh, Lisbon & Western; the Rahway Valley; and the Wrightsville & Tennille.

The composite percentages, which are not prescribed rates but merely the averages of percentages applied to the individual primary accounts, range from 3.13 per cent for the Wrightsville & Tennille to 10.38 per cent for the Atlantic & Yadkin. The composite figure for the New Haven is 3.25 per cent, derived from individual rates prescribed as follows: Steam locomotives, 2.91 per cent; other locomotives, 3.1 per cent; freight-train cars, 4.1 per cent; passenger-train cars, 2.72 per cent; floating equipment, 2.57 per cent; work equipment, 4.38 per cent; miscellaneous equipment, 15.46 per cent.

Bill Would Apply "Commodities Clause" to Pipe Lines

The Interstate Commerce Act's so-called "commodities clause," heretofore applied only to railroads, would be extended to include pipe lines under a bill introduced in the House of Representatives on April 30 by Representative Daly of Pennsylvania. The bill (H. R. 6794) would amend the act's first section by adding a new paragraph (8a) to provide that "from and after January 1, 1938, it shall be unlawful for any common carriers engaged in the transportation of oil or other commodity, except water and except natural or artificial gas, by pipe line, or partly by pipe line and partly by railroad or by water, to transport" in interstate or foreign commerce "any article or commodity, mined, manufactured or produced by it, or under its authority, or which it may own in whole or in part, or in which it may have any interest, direct or indirect, through stock ownership, or use, interlocking directors or officers, or other lawful means."

New Haven Entertains Youngsters

The New Haven is co-operating with educational authorities in the way of arranging inspection of railroad facilities by school children, as revealed in a report showing the number of such groups handled at New Haven alone during the month of March, when sixteen different parties were shown the facilities at the Cedar Hill freight terminal. In all, a total of 149 adults and 548 children were included in these parties.

It is the New Haven's custom to take the younger children to the passenger station and exhibit the various type of day coaches, sleeping cars, a dining car, a mail car, steam and electric locomotives, and other facilities. Older groups are taken also to freight terminals and given an opportunity to inspect operations there. These activities have been followed up by the institution of special reduced fares for school children—one half a cent per mile for grammar school children and one cent a mile for high school students, the road allowing one adult to accompany each ten children at the reduced rates.

Move to Simplify Vans' Railway Finance Structure

The new owners of control of the Alleghany Corporation have announced that first step has been accomplished in the simplification of the corporate structure of the railroad system formerly held by the Van Sweringens. These holders are the purchasers of the railroad holdings of the Midamerica Corporation—R. R. Young, A. P. Kirby, and F. F. Kolbe. On May 5, Mr. Young announced that the acquisition of the Alleghany securities had been completed and, further, that the George and Frances Ball Foundation, the organization which made the original sale to Messrs. Young, Kirby, and Kolbe, has acquired from the Midland Bank of Cleveland and from G. A. Tomlinson the Alleghany securities held by them, representing 6.33 per cent of all the Alleghany securities formerly held by Midamerica. These completed transactions free the Alleghany Corporation for the first time since its organization in 1929, from control by a holding corporation.

At the regular annual meeting of the Alleghany directorate, directors were elected representing the new interests which have entered its affairs. A definite plan will be prepared to eliminate the Chesapeake Corporation or to merge it with Alleghany.

Increased Traffic in Young Plants, Chicks and Bees

The Railway Express Agency reports a significant trend toward greater specialization in agriculture, especially in large scale farm production, as indicated by increased spring movement of vegetable plants, live bees, hatching eggs and baby chicks. Instead of growing from seed, farmers have learned the advantage of buying young vegetable plants, thus largely reducing the element of speculation and achieving heavier crops. As a result, a new rural industry devoted exclusively to the production of tomato, white and sweet potato and strawberry plants has attained permanency and is now shipping millions of such plants to large truck farms, small producers, dealers and even to homeowners with vegetable gardens.

Hundreds of big incubator establishments are bringing to life millions of chicks daily, delicate nature of which requires the fastest transportation available, so that, once out of the shell, they will reach destination farms within forty-eight hours, and a considerable proportion of the nation's annual production of these chicks is handled by the Express Agency.

The same short-cuts to increased honey production are being employed by large apiaries in northern sections of the country, and particularly in Canada. There it is found that bees seldom survive from one season to another and that winter kills a great many of them. Replenishment with insects from southern points during the early months of the year is now a simple matter, and express employes in these areas are quite accustomed to handling hundreds of thousands of live bees, in small box-like cages. Since there are 5,000 bees to a pound and the Railway Express Agency handles tons of this traffic annually, the number of insects transported is actually beyond calculation.

Trial Run of the New "Super-Chief"

The new "Super-Chief" of the Atchison, Topeka & Santa Fe made its initial run between Chicago and Santa Fe leaving Chicago on May 3 with a party of some 80 guests. The trip was sponsored by the Santa Fe, the Edward G. Budd Manufacturing Company and by Fred Harvey, Inc., and the presidents of each of these companies was in attendance. No attempt at a speed record was made, the maximum speed on the outbound trip having been 85 miles per hour, the run from Chicago to Santa Fe having been completed in the fast, but not record, time of 23 hours 30 minutes. The Diesel-electric engine being built for the train at the plant of the Electro-Motive Corporation will not be ready for some weeks and the run was made with regular steam locomotives between Chicago and Kansas City and La Junta and Santa Fe, and with oil-burning steam locomotives between Kansas City and La Junta.

The guests included publishers, editors and staff writers from many of the national magazines, as well as the travel editors of several newspapers. An unusual feature was the presence of several fashion and beauty experts of national syndicates and women's magazines, attracted by the unusual decorations of the new train which are in the Navajo motif and include the unusual feature of ceremonial sand paintings on the panels of the observation car, with plumed arrows as lighting fixtures. The party was entertained on May 4 and 5 at the Harvey La Fonda Hotel at Santa Fe, as well as by trips to the surrounding country under the auspices of Indian Detours, Inc. The train returned to Chicago on May 6 and a trip to Los Angeles will be begun on May 8. The new train will be shown in Los Angeles, San Diego and other Pacific Coast points for a week or ten days and will then be returned to Chicago in preparation for its regular high speed service between Chicago and Los Angeles. A complete technical description of the new Super-Chief will appear in the *Railway Age* of May 22.

House Passes Bill for Barge Service on Savannah

Extension of the Inland Waterways Corporation's operations to the Savannah river, thereby adding 203 route miles to the government barge line system, is authorized in a bill which passed the House of Representatives this week. It was said

by Representative Chapman of Kentucky that the expansion "will not cost anything." The federal government, he explained, has just completed and will have in operation after June 1 a lock and dam near Augusta, Ga., completed at a cost of approximately $2,000,000, which will establish and maintain a channel five to six feet deep throughout the year from Savannah to Augusta.

Thus the lack of cost applies to the actual launching of the barge line operations, for Major General T. Q. Ashburn, chairman and president of the Inland Waterways Corporation, testified at committee hearings on the bill that he has three boats ready to put into operation there, and, as Representative Chapman put it, to "make available to that important section of southeastern United States the benefits of the Inland Waterways Corporation without any additional expense."

B. & O. Opens Fifth Train Connection Station in N. Y.

The Baltimore & Ohio opened, on May 3, a new motor coach train-connection station in Rockefeller Plaza at Forty-ninth street, New York, with express service to trainside at its Jersey City terminal via the West Street elevated highway. The station will be located in the new 36-story building, the eleventh in the Rockefeller Center group, at 9 Rockefeller Plaza, and will have ground floor entrances on both the Plaza and the Forty-ninth street side. This station, the fifth of its kind to be established in New York since inauguration of the service in 1926, is equipped with travel bureau, ticket office and waiting room and other standard facilities.

Pennsy Analyzes Train Speeds

Having the theme, "Train Speeds," the latest issue of the Pennsylvania's "Train Talks" series points out to passengers the remarkable advances made by United States railroads in the time of both freight and passenger runs, quoting an analysis of the Association of American Railroads showing more than 400 daily passenger runs, covering in excess of 19,000 miles a day, operating on schedules of 60 miles an hour or better, as compared with 30 such runs, totaling 1100 miles a day, in 1930. From a compilation of European and American speed records, made by the *Railway Age* in the issue of April 4, 1936, the pamphlet lists 199 fast runs, arranged in 15 groups according to the mileage covered by each. American trains held first place in 12 of the 15 groups, second place in 14, third place in 14, and fourth place in 13 out of the 15 mileage classifications.

"In the field of freight service," the pamphlet continues, "the greatly improved speeds of recent years, though less generally known to the public at large, are no less important." For specific instances it points out that Pennsylvania freight service has been virtually revolutionized within a comparatively few years and now moves entirely by schedules; that speeds of 50 miles per hour are not uncommon in the regular daily operation of expedited service trains; and that merchandise moves to destination overnight up to distances of 400 miles and more. In a brief span of years, the average speed of freight trains on the Pennsylvania, the survey states, has been increased approximately 43%, saving an average of seven hours in the time each shipment is on the road.

N. Y. Central President Writes on Current Railroading

"Renovating the Railroads," an article by F. E. Williamson, president of the New York Central, appears in the current issue of the "Yale Scientific Magazine." Appropriating for his theme the scientific advances made by the carriers in recent years in spite of financial difficulties created by the general slump in industry and agriculture, the author stresses the gain in public esteem won by railroad men. He asserts: "The railroads have shown that they 'can take it.'"

Mr. Williamson, after treating of the remarkable increase in passenger and freight train speeds since 1930, and insisting that safety is still the primary consideration, presents an analysis of operating costs, presenting several contrasts of the "then and now" type. In one of these, dealing with the cost of moving one ton of freight for a thousand miles, he points out that in 1922 the haul cost the carriers, on the average, $10.78, in 1935 it had been cut to $6.53, a reduction of 39 per cent. He adds: "It has been figured that if the 1934 traffic had been handled on the basis of the unit cost of 1920 it would have cost a billion dollars more than it did to move this traffic."

Transport Recommendations of U. S. Chamber of Commerce

The Chamber of Commerce of the United States, at its 25th annual meeting in Washington, D. C., last week adopted, as a part of its "declaration of business policy" a resolution advocating that all forms of transportation be placed under Interstate Commerce Commission regulation, "confined to assurance of fair rates, adequate service and public safety, but avoiding interference with functions of management." The chamber would have separate divisions of the commission to deal with the different transport agencies, but in any reorganization of government agencies it would leave the I.C.C. undisturbed as "an independent body, reporting directly to Congress."

The resolution goes on to say that "all common carriers should be required to obtain certificates of public convenience and necessity and all contract carriers permits to operate"; and operators of one form of transport "should not be barred by law from operating other forms when properly qualified." Also, in fixing rates the commission should be required "to preserve the inherent advantages of each form of transportation and to consider effects on traffic movement, provision of efficient service at lowest consistent cost, and average return adequate in normal times to permit reasonable debt reduction and accumulation of proper reserves to assure stability."

The resolution continues to reiterate the chamber's 1936 stand to the effect that the commission should be relieved of its duty to maintain a comprehensive plan to railroad consolidation; and that consolidations through voluntary action of railroad companies should be encouraged. Also it would develop through cooperation "the consolidation or joint use of terminals and pooling of equipment and services."

A separate resolution on air transport regulation calls attention to the fact that that industry now derives two-thirds of its revenue from passenger and express business, and advocates that the air carriers be placed under the I.C.C. The resolution on highway policies declares that "the public welfare requires a nation-wide system of highways adequately improved and maintained." It adds that "highway programs should be based on comprehensive surveys, economic benefits of each highway, and proper relationship to the whole public budget." Federal aid, it concludes, "should be applied only to highways of general use, and should be matched by state funds, with suitable exceptions in states containing large areas of federal land."

Green Enters N. Y. Labor Row

William Green, president of the American Federation of Labor, was among the witnesses testifying last Wednesday before the emergency board appointed by President Roosevelt to investigate the three-party controversy between the railroads entering New York harbor, the Brotherhood of Railway Clubs, and the International Longshoremen's Association (discussed in the *Railway Age* of May 1, page 762), which has grown to be a jurisdictional dispute between the two labor organizations, while the railroads, as their representatives claim, are "suffering innocent bystanders."

Strengthening the claims made by G. M. Harrison, president of the clerks' union, that his organization had been granted jurisdiction over all handlers of railroad freight, since the agreement concerning its extended jurisdiction with the national body in 1916, the A. F. of L. executive testified that a few days prior to April 3, the executive council of the Federation gave jurisdiction over all men handling *railroad* freight, whether at piers or not, to the Clerks' brotherhood and instructed the longshoremen's association to relinquish the workers in question and turn them over to the brotherhood. Upon inquiry, he stated that the question of jurisdiction over freight handlers on the waterfront can be appealed to the executive council for rehearing at the next regular session, May 24.

Nevada Train Limit Law Enjoined As to Interstate Commerce

As noted briefly in the *Railway Age* of February 27, a three-judge court of the Federal District for Nevada granted to the Southern Pacific, on February 23, a permanent injunction of the enforcement, as to interstate commerce, of the Nevada statute limiting train lengths to 70 cars. As reported in the full proceedings of the case, recently published, the court approved the report of the special master that the benefits from the law's operation in re-

spect of hazards would be substantially more than offset by an increased number of accidents from other causes which would follow the limitation.

The report gave as examples the extra hazards from greater number of train units run, greater number of train orders to obey, and additional train movements in yards, increased grade crossing accidents, and head and rear-end collisions. It further claimed that to move the 1934 traffic in accordance with the act would require 5,150 additional freight trains, traveling 556,897 additional freight train-miles. Of these, 488,388 would be allocated to Nevada operation and 68,509 to extra-territorial operation. Furthermore, to remodel its system to comply with the law would cost the S. P. about $350,000, in addition to increased annual operating expenses of over $500,000.

Senate Committee Report on Train Limit Bill

The Senate interstate commerce committee's favorable report on the train limit bill characterizes that measure, as one which "would afford increased protection to railway employees and to the public; and it would certainly result in the greater frequency of trains thus furnishing to the shipper and to the consumer improved transportation services." The bill, which would limit the length of trains to 70 cars, was attacked in a recent Association of American Railroads statement as "an ill-advised make-work measure which would inevitably fail of its purpose in the long run."

In defending the bill as safety legislation the Senate committee looks over statistics of accidents to railway employees and concludes that railroads have made "little if any progress" in that connection since 1933, although it concedes that during the 1922-1933 decade the carriers "achieved a greater degree of safety in operation than ever before." However, in the light of the experience of recent years, and specifically 1935 when "railroad employees on duty suffered 6,351 temporary injuries with a resulting loss of 200,086 working days and 221 permanent, though not fatal injuries," the committee sees "a vital need for further safety measures in the operation of railroads." The public, it adds, is not aware of the situation—partially because of the surplus of railroad labor and partially because of "the wide publicity given by the railroads to the increased safety of passengers, without mention of the 282 deaths and 6,018 injuries to trainmen on duty resulting from train and train-service accidents in 1935."

There follows a discussion of the ability of present braking equipment to control long trains, attention being called to the fact that as of January 1, only 4.99 per cent of interchange cars had been fitted with the AB brake. Also, the results of visibility tests purporting to demonstrate that communication of signals between the locomotive and caboose becomes progressively more difficult as train lengths increase. As to the railroads' estimate that the bill would impose upon them increased operating costs of $150,000,000 to $237,000,000 a year, it is claimed that the legislation "would tend to equalize the length of trains without necessarily increasing the total number of trains measurably." There are cited in this connection statistics of average train length, which in 1933, 1934 and 1935 was 46 cars. The report closes with another reference to 1934 and 1935 accidents to employees and observes that "improvements in equipment have not kept pace with the increased speed, train length and tonnage of today."

The bill was passed over at the request of Senator Borah of Idaho when reached on the Senate calendar May 3.

Machine Tool Builders Meet in Chicago

Questions of public policy were given unusual prominence at the thirty-fifth spring convention of the National Machine Tool Builders' Association, held at the Edgewater Beach hotel, Chicago, on May 3 and 4. In an address showing the vital relation of machine tools to American prosperity, President Clayton R. Burt, President of the Pratt & Whitney division, Niles-Bement-Pond Company, Hartford, Conn., said that machine tool builders are committed to the principle of "more goods for more people" as a means of creating full employment for all who honestly want to work. He said that machine-tool builders have a reputation for fair dealing with employees with whom they have shared the profits of the industry; that they have co-operated with customers to increase production, thus making possible higher wages and increased distribution of products; that they have never ceased to furnish equipment essential for national defense needs, even though this has meant meeting the higher cost of the Walsh-Healey requirements; that they have contributed heavily to the support of various communities through taxes and service expenditures; and that they have led the procession in establishing sound training courses for young men to supplement school work in well-equipped trade and technical schools and co-operative colleges.

Mr. Burt said that machine tool builders are bending their efforts to design and supply the master tools which are the foundation for all better living, and closed his address with the following comment: "The whole-hearted cooperation of every branch and department of industry to improve quality and lower costs through technical means, in the interest of lower prices and greater employment income, is a project worthy of every encouragement from Washington. It merits freedom from crippling restrictions, fearless reduction of unnecessary government costs and a sincere effort to administer the laws now enacted with fairness to both the management of all business enterprises and to their employees."

Following the president's address, Tell Berna, general manager of the association, told what the members of the industry are doing and, in the interest of an enlightened public policy, urged the association to continue to place interesting and intimate facts concerning its activities before the public and those in charge of our national affairs. Dr. James S. Thomas, president Clarkson College of Technology, Potsdam, N. Y., addressed the association on "What machinery has done to mankind" and W. J. Cameron, Ford Motor Company, presented the subject, "Industry and Society." Other subjects of specialized interest were discussed by nationally known speakers and, following the presentation of committee reports, a series of group meetings were held.

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Stewardess on the B. & O.'s "Shenandoah" Making the Customers Feel at Home

Equipment and Supplies

Equipment Orders Continue Upswing

April purchases reveal brisk buying in rolling stock

Orders show a continued increase in excess of previous months for locomotives and freight cars for domestic service, as reported during the month of April in issues of the *Railway Age*. There have been ordered a total of 84 locomotives,—57 steam, 16 Diesel-electric, and 11 electric, 13,046 freight cars, and 42 passenger-train cars, bringing the total for the first four months of this year to 192 locomotives, 40,659 freight cars and 438 passenger-train cars.

Comparison with the corresponding month of 1936, when 15 locomotives were ordered, shows last month's locomotive orders to be about 5½ times that number and the first four months of this year to be greatly in excess of the figure for the four months period of last year. This trend of increasing orders is also shown in the freight car figures; the 13,046 freight cars ordered last month are almost four times the 3,650 cars reported in the corresponding month of last year and the figure for the four months of this year is more than three times as large as that for the corresponding period of last year. Moreover, the 13,046 cars ordered this month, are the largest number ordered in any single month since the first of the year. While the 52 passenger-train cars ordered this month are the lowest for any month since the first of the year, the total of 438 units purchased during the first four months of this year is considerably in excess of the 307 reported for the entire 12-months of 1936.

Inquiries are outstanding for about 23 locomotives for domestic service and 75 for export to China. Inquiries are also pending for about 3,550 freight cars for domestic service and about 200 for export. In addition, orders were placed in this country for 24 locomotives and for 1,000 freight cars for service in Mexico, and in Canada the Canadian National has placed an order for 50 passenger cars.

Domestic Equipment Orders Reported in Issues of The Railway Age in April, 1937

LOCOMOTIVES

Date	Name of Company	No.	Type	Builder
Apr. 3	Missouri Pacific	6	Diesel-electric	Electro-Motive Corp.
Apr. 10	St. Louis-San Francisco	16		Company Shops
Apr. 10	Youngstown & Northern	1	0-6-0 Switching	Lima Locomotive Works
Apr. 10	Minneapolis, St. Paul & Sault Ste. Marie	4	4-8-4	Lima Locomotive Works
Apr. 10	Atlantic Coast Line	12	4-8-4	Baldwin Locomotive Works
Apr. 17	Pennsylvania	11	Electric	Company Shops
Apr. 17	Aliquippa & Southern	2	0-8-0 Switching	American Locomotive Co.
Apr. 24	Richmond, Fredericksburg & Potomac	6	4-8-4	Baldwin Locomotive Works
Apr. 24	Bangor & Aroostook	5	2-8-0	American Locomotive Co.
Apr. 24	Chicago, Rock Island & Pacific	10	Diesel-electric	Electro-Motive Corp.
May 1	Wheeling & Lake Erie	10	Switching	Company Shops
May 1	Great Western	1	2-8-0	American Locomotive Co.

FREIGHT CARS

Apr. 3	Lehigh & New England	75	Cov. Hopper	American Car & Foundr y
Apr. 3	Minneapolis, St. Paul & Sault Ste. Marie	250	Automobile	Pullman-Standard
		100	Gen. Service	Pullman-Standard
	(Wisconsin Central)	100	Hopper	Pullman-Standard
		100	Roger Ballast	American Car & Foundry
Apr. 10	Pennsylvania	1,500	Box	Company Shops
		1,000	Gondola	Company Shops
Apr. 10	Lake Superior & Ishpeming	300	Ore	Bethlehem Steel Co.
Apr. 17	Pennsylvania	300	Cov. Hopper	Company Shops
Apr. 17	Chicago, Milwaukee, St. Paul & Pacific	500	Hopper	
		500	Automobile	Company Shops
		1,000	Gondola	
		22	Air dump	
Apr. 17	Cincinnati, New Orleans & Texas Pacific	1,000	H. S. Gondola	American Car & Foundry
		1,000	Box	Pullman-Standard
		500	Box	Mount Vernon
		500	Automobile	Mount Vernon
		500	Hopper	Pressed Steel Car Co.
	(Alabama Great Southern)	250	H. S. Gondola	American Car & Foundry
		1,000	Box	Pullman-Standard
		250	L. S. Gondola	Pullman-Standard
		600	Hopper	Pressed Steel Car Co.
Apr. 24	Louisiana & Arkansas	50	Box	Pullman-Standard
		50	Hopper	General American
Apr. 24	Tennessee Coal, Iron & R. R. Co.	19	Ore	Pullman-Standard
		21	Gondola	Pullman-Standard
Apr. 24	Chicago, Burlington & Q	25	Gondola	Pullman-Standard
Apr. 24	Birmingham & Southern	25	Gondola	Pullman-Standard
May 1	Delaware & Hudson	100	Box	Company Shops
May 1	Cincinnati, New Orleans & Texas Pacific	59	Box	Pullman-Standard
May 1	Atlantic Coast Line	100	Phosphate	Bethlehem Steel Co.
		400	Box	Mount Vernon
		200	Automobile	Mount Vernon
May 1	Reading	600	Box	Company Shops
		50	Flat	Company Shops

PASSENGER-TRAIN CARS

Apr. 3	Norfolk & Western	9	Postal	Bethlehem Steel Co.
Apr. 17	Chicago, Milwaukee, St. Paul & Pacific	7	Dining	
		1	Mail-express	Company Shops
		5	Coach-Baggage	
May 1	Atlantic Coast Line	15	Coaches	Bethlehem Steel Co.
		15	Express	Bethlehem Steel Co.

LOCOMOTIVES

THE STEELTON & HIGHSPIRE has received one 600-hp. Diesel-electric locomotive from the American Locomotive Company.

THE SOUTHERN PACIFIC has ordered from the American Locomotive Company two rotary snow plows with 12-ft. cut.

THE ALTON & SOUTHERN has ordered from the American Locomotive Company one locomotive of the 2-8-2 type to have 25 in. by 30 in. cylinders and a total weight of 280,000 lb. in working order.

THE SOUTH BUFFALO has received two 600-hp. Diesel-electric locomotives from the Electro-Motive Corporation and one 600-hp. Diesel-electric locomotive from the American Locomotive Company. Part of this equipment was ordered in the last quarter of 1936.

THE PATAPSCO & BACK RIVERS has received three 600-hp. Diesel-electric locomotives from the Electro-Motive Corporation and one 600-hp. Diesel-electric locomotive from the American Locomotive Company. Part of this equipment was ordered in the last quarter of 1936.

THE PHILADELPHIA, BETHLEHEM & NEW ENGLAND has received five Diesel-electric locomotives as follows: From the Electro-Motive Corporation, one 900-hp. and three 600-hp. Diesel-electric locomotives, and from the American Locomotive Company, one 900-hp. Diesel-electric locomotive. Part of this equipment was ordered in the last quarter of 1936.

FREIGHT CARS

GODFREY L. CABOT, INC., Boston, Mass., is inquiring for 20 steel covered hopper cars of 35 tons' capacity, for transporting dried carbon black.

PASSENGER CARS

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for ten light-weight steel deluxe passenger coaches, 78 ft. 6½ in. long.

THE GULF, MOBILE & NORTHERN is inquiring for two light-weight Cor-Ten steel sleeper-coaches.

READING.—The board of directors of the Reading Company has authorized the purchase of a train of standard light-weight equipment to be constructed by the Edward G. Budd Manufacturing Company, Philadelphia, Pa., of stainless steel, shot-welded, completely air conditioned, equipped with individual reclining seats, and a smoking lounge in each coach; dining facilities and a cocktail lounge are also included. The cost will be approximately $500,000. The train will be operated between Philadelphia, Pa., and New York by a streamlined Pacific type steam locomotive, the service to be inaugurated as soon as the equipment is available. It will provide a high speed service on a two-round-trip-daily schedule; there will be no extra

charge, the maximum two cents a mile rate to prevail for all passengers.

SIGNALING

THE PHILADELPHIA RAPID TRANSIT has ordered from the Union Switch & Signal Co. materials for an electro-pneumatic interlocking plant at 69th Street Terminal, Philadelphia, Pa., involving a 39-lever electro-pneumatic interlocking machine with illuminated track model, color light signals, relays, etc. The field installation will be handled by the Transit Company's regular signal construction forces.

HUDSON & MANHATTAN.—This road has given the Union Switch & Signal Co. a contract for changing and re-arranging the existing signaling and interlocking in the Hudson & Manhattan Company's 33rd Street Terminal, Sixth avenue, New York, and its vicinity. This terminal will be temporarily eliminated to permit construction of the City's new Sixth avenue subway line. The changes involve establishing a new temporary terminal at 28th street, where the Union Switch & Signal Co. is now installing a new temporary interlocking and electro-pneumatic automatic train stop equipment to handle the traffic until the final completion of the 33rd street plant, where a 15-lever electro-pneumatic interlocking machine will be provided in the permanent layout. The 33rd Street Terminal will be again placed in operation when the changes are completed, which will require about two years to finish.

Construction

CANADIAN NATIONAL.—A contract for the steel superstructure of a new bridge over the Saint John river at Fredericton, N. B., has been awarded to the Hamilton Bridge Company, Hamilton, Ont. This bridge is to replace the one destroyed in the spring of last year by the flood waters. Work on the construction of the new bridge will be commenced during the coming summer. In order to reduce the possibility of the bridge being carried out again by floods, the grade of the track will be raised five feet. There will be a subway at Queen street in Fredericton and another at Union street in South Devon on the opposite shore of the river. The bridge itself, apart from the approaches, will be 2,000 ft. long and will consist of eight truss spans and one swing span set upon nine piers. It will be used jointly by the Canadian National and Canadian Pacific, as was the old bridge.

CANADIAN PACIFIC.—A contract has been awarded to Dutton Brothers & Co., Calgary, Alt., for relocating a portion of the line between Illecillewaet, B. C., and Downie, where the new line will be constructed on the opposite side of the canyon from the existing line. The work includes the grading and the construction of piers and abutments for a bridge across the canyon. Old spans from an existing bridge at another location will be used. Work will be completed by September 15. Track will be laid by company forces.

CHICAGO & EASTERN ILLINOIS.—A contract has been awarded to Ross & White Company, Chicago, for furnishing and installing an "N & W" type electric cinder-handling plant at Villa Grove, Ill.

LEHIGH VALLEY.—Bids will be received on May 19 for grade crossing elimination work in the Town of Ithaca, N. Y., to cost about $237,000.

NORTHERN PACIFIC.—This company expects to receive bids soon for the construction of extensions to its enginehouses at Spokane, Wash., and Pasco. At both places the stalls will be extended from a length of 90 ft. to 145 ft., the estimated cost of the work at Spokane being $30,000 and at Pasco $50,000. In addition orders have been placed with the American Bridge Company for new turntables for installation at these points. The new turntables, which will be of the three-point contact type, will be 135 ft. long and will replace 85-ft. turntables of the balanced type. The estimated cost of the new turntables is $65,000 each.

In conjunction with the Union Pacific, this company plans the construction in the immediate future of a joint passenger station at Moscow, Idaho, at a cost of $45,000. The depot is to be constructed of brick and stone, and will be designed to harmonize with the buildings of the University of Idaho, which are located only a short distance from the station.

NEW YORK CENTRAL.—A contract has been given to the Del Balso Construction Corporation, New York, for the construction of a pedestrian underpass at Riverside Drive and West 180th Street, New York City.

THE CITY OF PHILADELPHIA, PA., DEPARTMENT OF CITY TRANSIT, will receive bids on Thursday, May 13, on contract No. 236 for furnishing creosoted ties for subway trackwork in South Broad street, approximately 234,500 ft. board measure. Contract No. 237, for furnishing rail and track fastenings for subway trackwork in South Broad street, approximately 453 gross tons of 100-lb. A.S.C.E. rail, 450 pairs of splice bars, including bolts and nut locks, and 34,500 screw spikes. Contract No. 238, for furnishing contact rail for Broad street subway, approximately 325 gross tons of 150-lb. rail. Contract No. 239, for furnishing special trackwork and channels for subway in South Broad street. Bids are also sought on Tuesday, May 18, on contract No. 240, for furnishing and installing mercury arc power rectifier equipment and transformers in substation No. 8 and on contract No. 241, for furnishing and installing switch gear equipment in substation No. 8.

READING.—Contracts have been let to Young Brothers, Inc., Philadelphia, Pa., for excavation, masonry and other appurtenant work, and to L. S. Eastwick, Inc., E. Lansdowne, Pa., for the waterproofing, in connection with repairs to bridge No. 89/05 over Schuylkill river, north of Schuylkill Haven (Pa.) station, to cost about $36,990.

Supply Trade

The American Brake Shoe & Foundry Co., of California, has established its general offices at 1010 Russ building, San Francisco, Cal. **A. L. Clark** is president of this subsidiary company. The parent company is the American Brake Shoe & Foundry Co.

P. A. McGee, assistant electrical engineer of the Reading-Jersey Central has resigned to join the sales department of the **Electro-Motive Corporation.** Mr. McGee will have his headquarters in the company's New York office at 230 Park avenue.

The Massey Concrete Products Corporation, with general offices in the Peoples Gas Building, Chicago, has made changes in the officers of the corporation, effective May 1, as follows: **J. S. Hobson,** chairman of the board; **G. A. Blackmore,** president; **Charles Gilman,** first vice-president and general manager; **G. H. Redding,** vice-president, and **B. F. Landers,** acting vice-president, secretary-treasurer.

Owen Harvey, treasurer and assistant secretary of the **Mt. Vernon Car Manufacturing Company,** Mt. Vernon, Ill., has been elected vice-president, secretary and treasurer, to succeed **H. H. Cust,** resigned. **Robert Harvey,** chief accountant, has been appointed assistant treasurer and **H. L. Wood,** head of the cost department, has been appointed assistant secretary. **L. A. Bedard,** as previously announced in the *Railway Age,* has been appointed manager of sales.

P. W. Giannini, formerly head of the Traffic Equipment Corporation, New York, is now associated with the **Aeroil Burner Company, Inc.,** West New York, N. J., as manager of its new **Traffic Equipment Division.** The Aeroil Burner Company is now the sole licensee for the manufacture and sale of all products formerly made by the Traffic Equipment Corporation. These products include "Reflectostrip" and "Reflectosignals." The Aeroil Burner Company has branches in Chicago, San Francisco, Cal., and Dallas, Tex.

John W. White, whose appointment as vice-president and general manager of the **Westinghouse Electric International Company,** with headquarters at New York, was noted in the *Railway Age* of May 1, was born at Indianapolis, Ind. He received his early education at Randolph-Macon. Later, while engaged with Westinghouse at its East Pittsburgh, Pa., works, Mr. White attended night courses at the Carnegie Institute of Technology. From 1905 to 1912 he continued at the main works of The Westinghouse Company, and in 1917 he became manager of the Central station and transportation divisions of the Detroit office. His first connection with export was in 1918, when he was assigned to Cuba as Westinghouse manager, with headquarters at Havana. In 1925 he was appointed general manager of the then Westinghouse Company of Japan,

later acting as managing director with his staff office at Tokio. In 1931 he was made managing director of the Compania Westinghouse Electric International, S. A., with headquarters at Buenos Aires in the Argentine. This position he held until last fall, when he was promoted to general manager of the Westinghouse Electric International Company.

Walter H. Baselt, assistant chief mechanical engineer of the **American Steel**

(c) Moffett Studio
Walter H. Baselt

Foundries, has been promoted to chief mechanical engineer with headquarters in Chicago and has been succeeded by **Robert B. Cottrell.** Mr. Baselt, who received his technical education at Armour Institute in Chicago, joined the engineering force of the American Steel Foundries in 1916 and has been continuously employed with this company since that date, except for a period of service with the government. He has been assistant chief mechanical engineer since 1929.

Stanley T. Scofield, who has been appointed assistant to vice-president of the **United States Steel Corporation,** New York, was born on May 20, 1886, at Buckhorn Furnace in the Hanging Rock iron region of southern Ohio. He was graduated from the Ohio State University with

Stanley T. Scofield

a B.A. degree in 1905. Mr. Scofield then served to 1918 with a midwestern manufacturer of mining and contractors' equipment and industrial cars. He developed an advertising and sales promotion department and for a time was sales manager of all distributing products. From 1918 to 1923, he conducted an advertising agency and then became general advertising and sales promotion manager of Fairbanks, Morse & Co., Chicago. In 1929, he went with the Penton Publishing Company, Cleveland, Ohio, and was engaged in special steel market research work, and from 1932 until 1937 he conducted the sales research department of the United States Steel Corporation, developing and co-ordinating market information underlying general commercial activities, organization objectives and plant investment considerations, until his appointment of April 1, as assistant to the vice-president in charge of sales of the United States Steel Corporation.

L. J. Stephenson, whose appointment as electrical engineer of the **Pullman-Standard Car Manufacturing Company,** with headquarters at Chicago, was noted in the *Railway Age* of May 1, was born October 26, 1888, at Port Huron, Mich. He was graduated from the University of Michigan in 1911 with the degree of B.E.E. Mr. Stephenson began as an apprentice in the East Pittsburgh shops of the Westinghouse Electric & Manufacturing Company, working on appara-

L. J. Stephenson

tus for the St. Clair tunnel electrification, at Port Huron, Mich. In 1911 he became research engineer of the Anderson Electric Car Company, Detroit, Mich. Also as a research engineer, he went with Woods Motor Vehicle Company, Chicago, Ill., in 1914, developing a gas-electric drive for road vehicles. Prior to going with Westinghouse in 1923, Mr. Stephenson worked as a consulting engineer, developing numerous patents of his own, covering control systems for electric motors. At Westinghouse, he became engineer in charge of design of control equipment for heavy traction, gas and oil electric rail cars and locomotives. In 1929, he became electrical engineer for Walker Vehicle Company, Automatic Transportation Company and Barrett Cravens Company, manufacturers of industrial trucks and tractors. Following this connection, he became, in 1933, fire protection engineer and superintendent of the safety department of Sherwin-Williams Company, Chicago, which position he left for his present appointment with the Pullman-Standard Car Manufacturing Company. His work is largely the electrical design of streamline trains.

Koppers Company

The annual report of Koppers Company for 1936 shows substantial increases in sales and net income, and a 34.6 per cent increase in employment. Net sales and operating revenues last year totaled $37,153,513, compared with $32,224,685 in 1935. Income available for preferred stock dividends totaled $3,065,629 in 1936, as compared with $1,588,132 in 1935.

Interest and sinking fund requirements were reduced through a program which was carried out during the year for the reduction and simplification of the company's indebtedness. These steps reduced total indebtedness to $28,000,000 at the end of 1936, as compared with $43,727,500 at the close of 1935.

According to the report a considerable increase in railroad buying and in railroad track maintenance work was a large factor in the betterment of volume and of earnings for the Wood Preserving Corporation, one of the company's subsidiaries. Since a minimum amount of maintenance work was done during the depression, the report continued, there should be a stored-up demand for treated ties and other timbers for railroad use. The railroads always have been the leading users of treated material. The report shows that with few exceptions all of the products of the tar and chemical division were sold in greater volume than in 1935. Unit prices and realizations were also better in many instances. Sales of creosote oil were expanded, largely due to increased buying by the railroads.

The products of the American Hammered Piston Ring division are now sold throughout the oil industry, to the marine trade, to industrial and municipal plants of every description, and to the railroads, as well as for use in aircraft and Diesel engines. For the railroad field, the division has developed a newly-patented type of locomotive packing ring. A similar type of ring has been used successfully in a number of the new high-speed Diesel engines for both marine and railroad service. This division has patented a new combination bronze and iron packing ring for the cylinders of steam locomotives and now has several in use on railroads.

OBITUARY

George C. Lucas, senior partner of the Cleveland Frog & Crossing Company, Cleveland, Ohio, died on April 14.

William M. Bushnell, traffic manager of the Mt. Vernon Car Manufacturing Company, Mt. Vernon, Ill., died on April 24 after an illness of a few days. Mr. Bushnell was born in Stark County, Ill., in 1864, and he had long been identified with the railroad business, having served as general freight agent on the Chicago, Peoria & St. Louis, at St. Louis, Mo., and as general manager of the Fort Smith & Western at Fort Smith, Ark., previous to his joining the Mt. Vernon Car Manufacturing Company.

Financial

ALABAMA GREAT SOUTHERN—*Equipment Trust Certificates.*—The Interstate Commerce Commission, Division 4, has authorized this company to issue $3,825,000 of 2¾ per cent serial equipment trust certificates, maturing in 15 equal annual installments on April 15 from 1938 to 1952. The issue has been sold at 97.628 to a group composed of Salomon Brothers & Hutzler, Dick & Merle-Smith, and Stroud & Co., Inc., making the average annual cost to the company approximately 3.1 per cent.

BALTIMORE & OHIO.—*Abandonment.*—The Interstate Commerce Commission, Division 4, has authorized this company to abandon operation and the Little Kanawha to abandon the line of road extending from Parkersburg, W. Va., to Placid, 8.63 miles.

CENTRAL VERMONT.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon the operation of a line of the Bethel Granite extending from Bethel, Vt., to the E. B. Ellis Quarries, 5.4 miles. The Bethel Granite Railway has asked for authority to abandon the line.

COPPER RANGE.—*Securities.*—The Interstate Commerce Commission, Division 4, has authorized this company to issue $2,280,000 of 5 per cent noncumulative preferred stock of a par value of $100 and $1,000,000 of common stock of a par value of $50 in effecting its reorganization.

CHESAPEAKE & OHIO.—*Annual Report.*—The 1936 annual report of this company shows net income, after interest and other charges, of $43,790,002, as compared with net income of $31,039,484 in 1935. Selected items from the general income account follow:

	1936	1935	Increase or Decrease
Railway Operating Revenues	$135,538,279	$114,024,686	+$21,513,592
Maintenance of way	11,990,524	11,410,299	+580,224
Maintenance of equipment	23,052,062	20,068,064	+2,983,997
Transportation	28,736,204	25,810,108	+2,926,096
Total Operating Expenses	70,014,489	63,289,894	+6,724,595
Operating ratio	51.66	55.50	−3.84
Net Revenue from Operations	65,523,790	50,734,792	+14,788,997
Railway tax accruals	13,318,038	10,680,447	+2,637,591
Railway operating income	52,205,751	40,054,345	+12,151,405
Equipment rents—Net	1,995,004	1,109,243	+885,760
Joint facility rents—Net	1,465,893	1,226,307	−239,585
Net Railway Operating Income	52,734,862	39,937,281	+12,797,581
Other income	855,012	919,247	−64,234
Gross Income	54,212,589	40,949,005	+13,263,584
Rent for leased roads and equipment	50,155	38,839	+11,315
Interest on funded debt	10,212,715	9,726,992	+485,722
Net Income	$43,790,002	$31,039,484	+$12,750,517
Disposition of net income:			
Income applied to Sinking and Other Reserve Funds	293,910	145,990	+147,920
Income Balance Transferred to Profit and Loss	$43,496,092	$30,893,494	+$12,602,597

CHICAGO, BURLINGTON & QUINCY.—*Annual Report.*—The 1936 annual report of this road shows net income, after interest and other charges, of $5,157,164, as compared with net income of $1,842,843 in 1935. Selected items from the income account follow:

	1936	1935*	Increase or Decrease
Average Mileage Operated	9,004.40	9,035.11	−30.71
Railway Operating Revenues	$98,082,410	$82,901,979	+$15,180,431
Maintenance of way	12,797,544	10,824,581	+1,972,963
Maintenance of equipment	16,820,494	14,950,519	+1,869,975
Transportation	34,549,545	30,844,331	+3,705,214
Total Operating Expenses	71,243,003	62,544,383	+8,698,620
Operating ratio	72.64	75.44	−2.80
Net Revenue from Operations	26,839,407	20,357,595	+6,481,812
Railway tax accruals	8,411,125	5,983,920	+2,427,205
Railway operating income	18,428,281	14,373,675	+4,054,606
Hire of Equipment—Net Dr.	2,541,936	1,954,134	+587,802
Joint facility rents—Net Dr.	2,437,518	2,191,186	+246,332
Net Railway Operating Income	13,448,826	10,228,354	+3,220,472
Non-operating income	1,294,350	1,080,893	+213,457
Gross Income	14,743,176	11,309,248	+3,433,928
Rent for leased roads and equipment	154,957	152,691	+2,266
Interest on funded debt	9,138,398	9,084,635	+53,763
Total Fixed Charges	9,495,391	9,428,159	+67,232
Net Income	$5,157,164	$1,842,843	+$3,314,321

* Restated so far as practicable to agree with classification effective January 1, 1936.

CINCINNATI, NEW ORLEANS & TEXAS PACIFIC.—*Equipment Trust Certificates.*—The Interstate Commerce Commission, Division 4, has authorized this company to assume liability for $6,810,000 of 2½ per cent equipment trust certificates, maturing in 15 equal annual installments of $454,000 on April 15, from 1938 to 1952. The issue has been sold at 96.678 to a group composed of Salomon Brothers & Hutzler, Dick & Merle-Smith, and Stroud & Co., Inc., making the average annual cost to the company approximately 2.98 per cent.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Annual Report.*—The annual report of this company for 1936 shows net deficit, after fixed charges, of $4,052,423, a decrease of $4,812,639 as compared with net deficit in 1935. Selected items from the income account follow:

	1936	Increase or Decrease Compared with 1935
Railway Operating Revenues	$109,142,086	+$16,695,389*
Maintenance of way	18,561,825	+1,537,957
Maintenance of equipment	19,652,864	+1,803,718
Transportation	40,501,963	+4,316,992
Total Operating Expenses	85,244,354	+8,827,837
Operating ratio	78.10	−4.56
Net Revenue from Operations	23,897,731	+7,867,551*
Railway tax accruals	8,135,000	+2,143,000
Railway operating income	15,762,731	+5,724,551
Equipment rents—Dr.	3,334,094	+583,399
Joint facility rents—Dr.	2,967,279	+403,776
Net Railway Operating Income	9,461,358	+4,737,375
Non-operating income	1,459,580	+61,228
Gross Income	10,920,938	+4,798,603
Rent for leased roads and equipment	1,108,211	−1,202
Interest on funded debt	12,913,401	−314,217
Total Fixed Charges	14,903,754	+2,977
Income after Fixed Charges (deficit)	4,052,423	−4,812,639
Contingent charges: Int. on Convertible Adj. Mortgage Bonds (5% accrued)	9,143,684	.....
Net Income (deficit)	13,196,108	−4,812,639
Debit Balance Transferred to Profit and Loss	$13,196,108	−$4,812,639

* Comparison with 1935 is after restating revenues for that year to include charge for "Uncollectible Railway Revenues" of $27,096.03 which, in accordance with Interstate Commerce Commission Classification, effective January 1, 1936, is included in the revenue accounts, instead of being stated as a separate account.

DULUTH, MISSABE & NORTHERN.—*Annual Report.*—The 1936 annual report of this company shows net income, after interest and other charges, of $6,896,650, as compared with net income of $2,600,907 in 1935. Selected items from the income account follow:

	1936	1935	Increase or Decrease
Railway Operating Revenues	$19,091,036	$11,519,810	+$7,571,226
Total Operating Expenses	8,397,387	6,642,542	+1,754,844
Operating ratio	43.99	57.66	−13.67

Net Revenue from Operations	10,693,649	4,877,267	+5,816,381
Railway tax accruals	1,990,415	1,121,436	+868,979
Railway operating income	8,703,233	3,755,614	+4,947,619
Equipment and Joint facility rents—Net	(Dr.) 8,432	(Cr.) 9,972	−18,404
Net Railway Operating Income	8,694,801	3,765,586	+4,929,215
Non-operating income	182,023	344,913	−162,889
Gross Income	8,876,825	4,110,499	+4,766,325
Rent for leased roads	1,442,263	1,441,573	+689
Interest on funded debt outstanding	15,575	52,675	−37,100
Total Fixed Charges	1,501,668	1,494,460	+7,207
Net Income	$6,937,650	$2,600,907	+$4,336,742

Illinois Central.—*Annual Report.*—The 1936 annual report of the Illinois Central System shows net income, after interest and other charges, of $764,743, as compared with net deficit of $9,932,399 in 1935. Selected items from the income account follow:

	1936	1935 (1)	Increase or Decrease
Average Mileage Operated	11,436.36	11,500.57	−64.21
Railway Operating Revenues	$114,955,546	*$97,459,738	+$17,495,808
Total Operating Expenses	85,253,994	81,853,579	+3,400,415
Operating ratio	74.16	83.99	−9.83
Net Revenue from Operations	29,701,552	15,606,159	+14,095,392
Railway tax accruals	†9,131,198	6,693,086	+2,438,112
Railway operating income	20,570,353	8,913,073	+11,657,280
Hire of Equipment and Joint facility rents	5,954,550	5,038,282	+916,268
Net Railway Operating Income	17,115,016	6,724,243	+10,390,773
Non-operating income	930,554	805,013	+125,540
Gross Income	18,045,570	7,529,256	+10,516,313
Rent for leased roads	947,206	942,670	+4,536
Interest on funded debt	15,846,147	16,054,626	−208,479
Total Fixed Charges	17,280,827	17,461,656	−180,828
Net Income	$764,743	$9,932,399 (Def.)	+$10,697,142

(1) The figures shown under this column are those contained in the 1935 annual report. They have not been adjusted to eliminate the $7,750,205.43 of charges for maintenance expenditures actually made in 1934.

* Restated to deduct Uncollectible Railway Revenues in accordance with the I.C.C.'s Classification in effect January 1, 1936.

† After providing for accruals under Railroad Retirement tax of $1,579,082.90 and Unemployment Insurance taxes of $540,016.56 or a total of $2,119,099.46 included above in taxes.

Erie.—*Extension of R.F.C. Loan.*—This company has applied to the Reconstruction Finance Corporation and the Interstate Commerce Commission for a rearrangement of the maturity of its loans from the R.F.C. totaling $20,760,310. The company proposes to repay the loans as follows: On June 1, $360,310.60; on each January 31 and July 1, from 1938 to 1944, $400,000; on each April 30 and October 31, from 1937 to April 30, 1944, $200,000; and on January 31, 1945, $12,000,000. The interest rate will remain at 4 per cent as at present. The loans from the R.F.C. would have matured during this year and next year.

Long Island.—*Annual Report.*—The 1936 annual report of this road shows net deficit, after interest and other charges, of $1,158,030, a decrease of $249,810 as compared with net deficit in 1935. Selected items from the income statement follow:

	1936	Increase or Decrease Compared with 1935
Railway Operating Revenues	$25,525,378	+$1,718,967
Maintenance of way	2,247,709	+205,619
Maintenance of equipment	4,707,443	+448,285
Transportation	11,622,914	+447,321
Total Operating Expenses	19,616,192	+1,184,833
Operating ratio	76.8	−0.6
Net Revenue from Operations	5,909,185	+534,133
Railway tax accruals	3,139,196	+387,737
Railway operating income	2,769,989	+157,980
Equipment rents—Dr.	361,210	−113,245
Joint facility rents—Dr.	1,611,327	+14,461
Net Railway Operating Income	797,450	+256,764
Non-operating income	372,698	−1,327
Gross Income	1,170,149	+255,437
Rent for leased roads	60,000	.....
Interest on funded debt	2,017,208	−8,821
Total Deductions from Gross Income	2,328,180	+5,626
Net Deficit	$1,158,030	−$249,810

Los Angeles Junction.—*Lease.*—The Interstate Commerce Commission, Division 4, has authorized this company to lease the railroad properties of the Central Manufacturing District, Inc.

Louisville & Nashville.—*Annual Report.*—The 1936 annual report of the above company shows net income, after interest and other charges, of $9,628,472, as compared with net income of $4,128,943 in 1935. Selected items from the income account follow:

	1936	1935	Increase or Decrease
Average mileage operated	4,986.49	5,044.55	−58.06
Railway Operating Revenues	$91,040,150	$75,679,318	+$15,360,832
Maintenance of way	9,221,407	8,238,957	+982,450
Maintenance of equipment	20,686,042	17,214,874	+3,471,168
Transportation—Rail	29,801,624	26,660,845	+3,140,779
Total Operating Expenses	65,648,760	57,795,869	+7,852,891
Net Revenue from Operations	25,391,390	17,883,448	+7,507,941
Railway tax accruals	6,626,087	4,311,108	+2,314,978
Railway operating income	18,765,302	13,572,340	+5,192,962
Net rents	492,061	389,618	+102,442
Net Railway Operating Income	19,257,363	13,961,958	+5,295,405
Non-operating income	915,044	825,123	+89,921
Gross Income	20,172,408	14,787,082	+5,385,326
Rent for leased roads	325,683	307,134	+18,549
Interest on funded debt	10,059,162	9,967,532	+91,629
Total Fixed Charges	10,423,763	10,315,084	+108,678
Net Income	$9,628,472	$4,128,943	+$5,499,528

Missouri Pacific.—*Equipment Trust Certificates.*—The trustees have applied to the Interstate Commerce Commission for authority to assume liability for $4,260,000 of 3½ per cent equipment trust certificates, maturing in 15 annual installments on June 1 from 1938 to 1952.

Mobile & Ohio.—*Annual Report.*—The 1936 annual report of this road shows net deficit, after interest and other charges, of $377,644, as compared with net deficit of $1,583,766 in 1935. Selected items from the income statement follow:

	1936*	1935*	Increase or Decrease
Average Mileage Operated	1,201.93	1,201.93	.....
Railway Operating Revenues	$10,847,701	$8,850,693	+$1,997,008
Maintenance of way	1,321,654	1,379,759	−58,105
Maintenance of equipment	2,196,513	1,971,499	+225,014
Transportation	3,854,835	3,495,243	+359,592
Total Operating Expenses	8,363,535	7,730,345	+633,190
Net Revenue from Operations	2,484,166	1,120,347	+1,363,819
Hire of Equipment	259,283	302,348	−43,065
Joint facility rents	365,250	376,408	−11,158
Net Railway Operating Income	1,262,705	1,048,216	+214,489
Non-operating income	54,580	65,477	−10,897
Gross Income	1,317,286	137,608	+1,179,678
Rent for leased roads	1,418	1,418	.....
Total Fixed Charges	1,683,162	1,711,674	−28,512
Net Deficit	$377,644	$1,583,766	−$1,206,122

* Combined Corporate and Receivers' Accounts.

New York, Chicago & St. Louis.—*Securities.*—The Interstate commerce commission, Division 4, has authorized this company to use $352,908 of the proceeds from the sale of $16,000,000 of 10-year collateral-trust 4 per cent notes, with treasury funds, to pay an indebtedness of $553,135 to the Chesapeake & Ohio.

New York, Westchester & Boston.—*Trusteeship to End.*—Judge Hincks of the federal district court at New Haven stated that all claims against this company must

be presented by May 15 and that the court would terminate the trusteeship on June 28.

NORTHERN PACIFIC.—*Equipment Trust.*—Salomon Bros. & Hutzler, Dick & Merle-Smith and Stroud & Co. have offered publicly an issue of $6,490,000 of 2¾ per cent 10-year equipment trust certificates of this company, interest rates varying from 1.1 per cent to 2.9.

PENNSYLVANIA.—*Equipment Trust Certificates.*—The interstate Commerce Commission, Division 4, has authorized this company to assume liability for $7,740,000 of 2¾ per cent equipment trust certificates, maturing in 15 equal annual installments of $516,000 on May 1, from 1938 to 1952. The issue has been sold at 98.379 to Brown Harriman & Co., Inc., and associates, making the average annual cost to the company approximately 2.99 per cent.

READER.—*Reorganization.*—The Interstate Commerce Commission, Division 4, has submitted a plan of reorganization of this company to the principal debtor and the stockholders for their approval or disapproval.

TEXAS & PACIFIC.—*Annual Report.*—The 1936 annual report of this company shows net income, after interest and other charges, of $2,263,972, as compared with net income of $1,382,277 in 1935. Selected items from the income account follow:

	1936	1935*	Increase or Decrease
RAILWAY OPERATING REVENUES	$28,086,676	$23,467,635	+$4,619,041
Maintenance of way	3,146,822	2,407,945	+738,876
Maintenance of equipment	5,150,180	4,101,069	+1,049,111
Transportation—Rail	8,606,528	7,127,782	+1,478,746
TOTAL OPERATING EXPENSES	19,472,452	15,990,556	+3,481,896
Operating ratio	69.33	68.14	+1.19
NET REVENUE FROM OPERATIONS	8,614,224	7,477,079	+1,137,145
Railway tax accruals†	1,881,175	1,284,319	+596,856
Railway operating income	6,733,048	6,192,759	+540,289
Net rents—Dr.	1,454,590	1,111,772	+342,817
NET RAILWAY OPERATING INCOME	5,278,458	5,080,987	+197,471
Non-operating income	1,109,879	476,357	+633,522
GROSS INCOME	6,388,338	5,557,344	+830,993
Rent for leased roads and equipment	18,899	28,882	−9,983
Interest on funded debt	3,987,047	4,044,199	−57,151
TOTAL FIXED CHARGES	4,027,922	4,095,454	−67,531
Income after fixed charges	2,275,672	1,393,977	+881,694
NET INCOME	$2,263,972	$1,382,277	+$881,694

* For purpose of comparison, 1935 data has been restated to accord with changes effective January 1, 1936, in Interstate Commerce Commission accounting classifications.
† 1936 includes $96,000 surtax.

SOUTHERN NEW JERSEY.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to acquire a line extending from Tucker-

(*Continued on page 818*)

Railway Officers

EXECUTIVE

D. W. Pontius, president of the Pacific Electric, a subsidiary of the Southern Pacific, has retired from this position, effective May 1, to become chairman of the board of directors in charge of public policy matters. He will continue to have his office at Los, Angeles, Cal.

Edgar M. Whanger, special representative in the office of the vice-president of the Pere Marquette with headquarters at Detroit, Mich., has been appointed to the newly-created position of assistant to the vice-president, maintenance and operation, with the same headquarters.

FINANCIAL, LEGAL AND ACCOUNTING

A. W. Latham, a special accountant on the New York, Chicago & St. Louis, has been appointed to the newly-created position of auditor, and **H. L. Lehmkuhle,** general accountant, has been appointed assistant auditor, both with headquarters at Cleveland, Ohio. The position of general auditor, which has been held by **R. Larmer,** has been abolished.

John G. Walsh, treasurer of the Erie with headquarters at Cleveland, Ohio, has also been elected secretary, succeeding **George H. Minor,** deceased. Mr. Walsh

John G. Walsh

is a native of Albany, N. Y., and a graduate (1913) of Harvard college. He first entered the service of the Erie in 1917 as assistant to the vice-president in charge of financial matters. He has been treasurer since June, 1926.

OPERATING

C. E. McDonald, chief clerk to the vice-president and general manager of the Western Pacific, has been promoted to assistant to the general manager with headquarters as before at San Francisco, Cal., to succeed **Harry W. Forman,** who has retired after 65 years of railroad service, of which the last 21 have been with the Western Pacific. In his new capacity Mr. McDonald will be in charge of wages and working conditions, train rules and safety.

T. P. Crymes, a road supervisor on the Illinois Central at Greenwood, Miss., has been promoted to trainmaster, with headquarters at Memphis, Tenn., to succeed **O. H. McFarlin,** who has been transferred with the same headquarters to replace **F. H. Anderson,** deceased.

L. S. Rand, traffic manager of the Louisiana & Northwest, Homer, La., has been appointed superintendent and general manager, with the same headquarters, succeeding **W. M. Kent,** who has been granted a leave of absence indefinitely, due to ill health.

H. D. Bacheler, conductor on the Union Pacific with headquarters at Pocatello, Ida., has been promoted to courtesy director to succeed **E. Marksheffel,** who has been promoted to the newly-created position of terminal superintendent at Los Angeles, Cal.

J. Edwards, Jr., assistant division superintendent of the Baltimore & Ohio, with headquarters at Baltimore, Md., has been appointed superintendent of the Monongah division, with headquarters at Grafton, W. Va., succeeding **H. R. Gibson,** who has been assigned to other duties. **E. C. Cavey,** trainmaster at Rochester, N. Y., has been appointed assistant superintendent at Baltimore, succeeding Mr. Edwards. **A. R. Carver,** division engineer at Cumberland, Md., has been appointed acting superintendent of the Wheeling division at Wheeling, W. Va., succeeding **C. B. Gorsuch,** who has been granted a leave of absence at his own request on account of illness. **H. D. Graffious,** train dispatcher at Pittsburgh, has been appointed trainmaster at Rochester, N. Y., succeeding Mr. Cavey. **W. R. Galloway, Jr.,** trainmaster at Pittsburgh, has been transferred in the same capacity to Baltimore, with jurisdiction from Washington, D. C., to Park Junction, including branch lines. **C. H. Norris,** also trainmaster at Baltimore, will have jurisdiction from Relay, Md., to Brunswick, Md., and over the Metropolitan, Washington County, and Shenandoah sub-divisions. **R. A. J. Morrison,** trainmaster at Massillon, Ohio, has been transferred in the same capacity to Pittsburgh, succeeding Mr. Galloway. **W. C. Deegan,** trainmaster at Grafton, W. Va., has been transferred to similar duties at Massillon, succeeding Mr. Morrison. **A. N. Peters,** chief train dispatcher at Grafton, has been appointed trainmaster at the same point, succeeding Mr. Deegan.

TRAFFIC

J. K. Williams, general agent for the Louisville & Nashville with headquarters at Detroit, Mich., has been appointed foreign freight agent with headquarters at Louisville, Ky., to succeed **J. A. Bywater,** deceased.

C. O. Williams, general passenger and ticket agent of the Kansas City Southern with headquarters at Kansas City, Mo., has retired because of ill health, effective

April 30, after 39 years' service with this company. Mr. Williams was born in 1876 at Springfield, Mo., and entered railway service with the Kansas City, Pittsburgh & Gulf (now the Kansas City Southern) in 1898 as a telegraph operator. In the following year he was made a station agent, serving in this capacity at various points until 1904, when he was advanced to city passenger and ticket agent at Shreveport, La. After five years in this position Mr. Williams was appointed agent in the Grand Central station at Kansas City, where he remained until 1911, when he was appointed traveling passenger agent. In 1917 Mr. Williams was promoted to assistant general passenger agent with headquarters at Kansas City and after eleven years in this capacity he was further promoted to general passenger and ticket agent, the position he was holding at the time of his retirement.

Albert A. Drummond, sales traffic manager of the New York, New Haven & Hartford, with headquarters at Boston, Mass., has been appointed assistant general traffic manager, with the same headquarters. Mr. Drummond was born at Middleboro,

Albert A. Drummond

Mass., and entered the service of the New Haven in 1907 as clerk in the freight office at Bridgewater, Mass. During his service with the New Haven and subsidiary companies, Mr. Drummond has filled various positions in the operating, accounting and traffic departments. He was appointed assistant freight traffic manager in June, 1934, which position he held until November of the same year when the New Haven established in its traffic department a new section known as the Department of Sales and Traffic Development, with Mr. Drummond heading the new organization as sales traffic manager.

ENGINEERING AND SIGNALING

C. J. Jaeschke, division engineer on the Missouri Pacific at Poplar Bluff, Mo., has been transferred to Little Rock, Ark., with jurisdiction over the Arkansas division. **H. D. Knecht,** division engineer at Little Rock, has been transferred to St. Louis, Mo., with jurisdiction over the St. Louis Terminal-Illinois Divisions. **V. C. Halpin,** division engineer at St. Louis, has been transferred to the Missouri-Memphis divisions, with headquarters at Poplar Bluff.

J. S. Gensheimer, engineer telegraph and signals of the New York Zone of the Pennsylvania and the Long Island, has been appointed superintendent telegraph and signals, with headquarters as before at New York.

H. L. Exley, division engineer of the Baltimore & Ohio, with headquarters at Grafton, W. Va., has been transferred in the same capacity to Cumberland, Md., succeeding **A. R. Carver. E. J. Clopton,** assistant division engineer of the Baltimore division, has been appointed division engineer at Grafton, succeeding Mr. Exley.

SPECIAL

Walter S. Jackson has been appointed to the newly-created position of advertising manager of the Chesapeake & Ohio and the Pere Marquette, with headquarters at Cleveland, Ohio. Mr. Jackson was formerly chief clerk in the office of the late **L. C. Probert,** vice-president, whose office was at Washington, D. C.

Arthur Dailey has been appointed assistant advertising manager of the Atchison, Topeka & Santa Fe, effective May 1, thereby succeeding to the duties formerly discharged by **Roger W. Birdseye,** who, on December 1, 1936, was advanced from assistant to the general advertising manager to general advertising manager. Mr. Dailey has engaged for some years in advertising work, during which period he has devoted much of his time to travel promotion. A graduate of Northwestern university, he has served with the Raymond-Whitcomb Company and with Poole Brothers, a Chicago printing concern, and has assisted in the production of travel literature for a number of western carriers. Later he served with the J. Walter Thompson Company in its Chicago office and recently has been with Hays, MacFarland & Company, Chicago advertising agency.

MECHANICAL

Frank Ross, electrical engineer of the Terminal Railroad Association of St. Louis, has been promoted to superintendent of motive power and equipment effective May 1, succeeding **William Bawden** who, at his own request, has been appointed mechanical consultant.

C. K. Steins, whose appointment as assistant chief of motive power (locomotive) of the Pennsylvania was reported in the *Railway Age* of April 24, was born at East Orange, N. J., on February 21, 1891. He entered the service of the Pennsylvania on July 28, 1913, as special apprentice in the Altoona machine shop and on May 1, 1919, was transferred to the New York division as assistant master mechanic. On March 1, 1920, Mr. Steins was appointed assistant engineer motive power in New Jersey and on January 16, 1924, became assistant master mechanic of the Philadelphia division. He was appointed assistant engineer motive power, eastern region, on July 1, 1926, and on

C. K. Steins

February 1, 1928, he became master mechanic of the Indianapolis division. Mr. Steins was transferred to the Maryland division as master mechanic on October 1, 1929, serving in this capacity until his recent appointment as assistant chief of motive power under the chief of motive power at Philadelphia, Pa.

OBITUARY

McMurray Gaines, assistant to general manager of the Tennessee Central, with headquarters at Nashville, Tenn., died on April 26 at his home in that city.

Walter H. Gaskill, freight claim agent of the Delaware, Lackawanna & Western, with headquarters at Scranton, Pa., died at his home near Scranton on May 2. He was 53 years old.

W. Walthall, assistant to the president of the Missouri-Kansas-Texas of Texas, with headquarters at San Antonio, Tex., died on April 20 at Harlingen, Tex., while attending a meeting. Mr. Walthall was 57 years of age and had been in the service of the Katy for about 34 years.

Xerxes H. Cornell, formerly general superintendent of the Chicago & Alton (now the Alton), died on April 27 at Kansas City, Mo., at the age of 79 years. Mr. Cornell's first railway service was with the Chicago, Indiana & Southern (now part of the New York Central). In 1900 he joined the Grand Trunk, serving successively as chief dispatcher, trainmaster and master of transportation until December, 1910, when he entered the service of the Chicago & Alton and the Toledo, St. Louis & Western (now part of the Nickel Plate) as inspector of transportation. In April, 1912, he was made superintendent of transportation of these companies, resigning in October of the same year to become superintendent of transportation of the Pere Marquette. In June, 1914, he returned to the Chicago & Alton as master of transportation, being advanced to general superintendent in March, 1916. In August, 1918, he was made superintendent of terminals at Chicago and some years later he was appointed road examiner. He was holding the latter position at the time of his retirement from active service about a year ago.

Tables of Revenues and Expenses of Railways begin on next left-hand page

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MARCH AND THREE MONTHS OF CALENDAR YEAR 1937

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: After depreciation 1937	After depreciation 1936	Before depreciation
Akron, Canton & Youngstown	March	171	$197,620	$49	$207,577	$27,211	$18,878	$9,026	$59,258	$124,716	60.1	$82,861	$66,701	$43,953	$34,442	$48,195
	3 mos.	171	567,164	130	600,440	80,225	49,750	27,213	173,392	360,779	60.1	239,661	191,651	115,589	123,283	128,315
Alton	March	956	1,062,166	178,017	1,434,327	123,604	220,966	47,231	548,257	1,008,816	70.3	425,511	319,104	151,253	—35,702	180,571
	3 mos.	956	2,953,854	569,625	4,074,249	326,334	589,345	149,080	1,551,542	2,823,372	69.3	1,250,877	934,710	453,027	10,746	540,907
Atchison, Topeka & Santa Fe Sys.	March	13,578	11,220,035	1,273,424	13,712,266	1,777,388	3,172,364	424,895	4,999,071	10,859,691	79.2	2,852,575	1,511,741	1,531,433	681,338	2,466,403
	3 mos.	13,396	31,562,325	4,049,478	38,864,624	4,396,044	9,240,079	1,299,340	14,800,659	31,176,800	80.2	7,687,824	3,944,978	3,838,530	1,354,883	6,644,730
Atlanta & West Point	March	93	115,844	24,074	165,562	22,864	31,235	8,164	62,551	135,611	81.9	29,951	20,593	5,380	—2,754	14,104
	3 mos.	93	319,342	76,908	472,253	57,279	100,920	25,279	184,227	402,153	85.1	70,100	42,453	—737	—10,859	25,449
Western of Alabama	March	133	105,000	23,490	146,513	24,662	34,793	7,523	55,146	131,641	89.8	14,872	2,823	2,372	3,833	14,622
	3 mos.	133	291,311	76,093	421,599	64,858	107,724	22,772	161,612	387,521	91.9	34,078	—1,725	2,857	—1,672	39,755
Atlanta, Birmingham & Coast	March	639	315,132	38,487	386,101	51,980	62,905	24,570	131,386	296,715	76.8	89,386	67,601	43,775	8,293	55,002
	3 mos.	639	820,310	93,911	1,010,267	147,721	164,729	70,884	371,148	832,215	82.4	178,052	113,676	54,415	—8,885	88,213
Atlantic Coast Line	March	5,102	3,682,861	1,181,039	5,384,855	443,924	755,853	134,065	1,768,060	3,331,779	61.9	2,053,076	1,328,076	1,193,225	895,000	1,363,111
	3 mos.	5,102	10,038,915	3,331,850	14,860,847	1,235,415	2,319,113	440,667	5,148,248	9,830,993	66.2	5,029,854	3,254,854	2,735,182	1,583,824	3,247,078
Charleston & Western Carolina	March	342	255,549	1,045	262,383	30,035	33,546	6,712	76,444	151,714	57.8	110,669	85,669	79,583	54,137	85,788
	3 mos.	342	632,026	3,163	651,813	86,331	93,272	20,094	211,381	426,009	65.4	225,804	156,304	140,128	112,044	158,762
Baltimore & Ohio	March	6,471	14,219,168	776,365	15,911,760	1,365,591	3,535,127	407,366	5,217,720	11,231,413	70.6	4,680,347	3,565,374	3,241,532	349,330	3,844,745
	3 mos.	6,471	38,376,202	2,479,619	43,256,121	3,743,460	9,613,044	1,154,136	15,120,969	31,693,886	73.3	11,562,235	8,196,620	7,061,954	4,526,928	8,869,370
Staten Island Rapid Transit	March	23	61,777	71,388	139,820	13,852	24,983	1,835	86,615	140,102	100.2	—282	—21,882	—30,014	—31,122	—22,856
	3 mos.	23	173,221	205,568	398,054	37,774	69,135	5,335	248,802	398,310	100.1	—256	—65,056	—88,679	—120,435	—66,685
Bangor & Aroostook	March	603	693,654	27,138	742,860	88,786	122,433	4,542	168,470	409,862	55.2	332,998	260,159	236,103	198,356	258,258
	3 mos.	603	1,853,629	81,381	1,996,680	252,305	297,791	16,536	479,175	1,124,052	56.3	872,628	669,751	617,222	593,356	683,719
Bessemer & Lake Erie	March	225	979,289	940	994,873	89,833	327,333	12,939	204,605	674,843	67.8	320,030	198,770	282,603	—37,588	356,452
	3 mos.	225	2,547,106	2,611	2,595,026	344,735	907,868	35,124	555,423	1,964,716	75.7	630,310	393,014	650,439	—2,462	872,128
Boston & Maine	March	1,959	3,233,287	581,584	4,425,887	533,242	599,378	59,315	1,600,908	2,988,485	67.5	1,437,402	1,144,912	953,692	—594,307	1,086,348
	3 mos.	1,964	8,628,043	1,799,872	12,076,570	1,343,291	1,829,845	190,174	4,538,700	8,467,323	70.1	3,609,247	2,713,322	2,100,791	—309,575	2,499,336
Burlington-Rock Island	March	255	103,674	13,670	124,951	16,965	16,102	4,619	52,915	98,325	78.7	26,626	19,306	—3,039	—23,801	—1,131
	3 mos.	255	250,804	40,266	308,990	44,668	46,662	15,197	142,545	272,779	88.3	36,211	13,592	—33,626	—77,539	—27,811
Cambria & Indiana	March	37	139,370	.....	139,492	4,956	38,934	362	14,767	64,839	46.48	74,653	15,368	92,702	78,688	109,676
	3 mos.	37	383,347	.....	383,718	15,722	121,983	1,155	42,912	200,522	52.26	183,196	49,627	272,240	277,852	323,337
Canadian Pacific Lines in Maine	March	233	308,249	14,048	335,562	21,314	63,413	9,386	99,264	201,237	59.9	134,325	123,773	102,370	36,457	104,514
	3 mos.	233	823,189	41,062	900,100	50,637	179,965	28,509	289,498	571,977	63.5	328,123	297,118	231,436	65,820	237,824
Canadian Pacific Lines in Vermont	March	85	87,716	8,966	109,423	12,106	31,717	4,172	65,180	119,422	109.1	—9,999	—16,431	—36,372	—73,296	—36,372
	3 mos.	85	245,855	29,126	308,336	33,905	87,208	12,673	189,115	341,051	110.6	—32,715	—52,277	—111,258	—190,325	—111,258
Central of Georgia	March	1,926	1,441,303	124,061	1,754,693	207,894	314,220	57,006	625,581	1,292,484	73.7	462,209	373,595	309,295	153,503	374,821
	3 mos.	1,926	3,581,124	387,235	4,471,310	541,213	851,809	164,205	1,749,770	3,571,025	79.9	900,285	623,314	475,133	123,733	671,126
Central of New Jersey	March	681	2,413,279	351,263	2,949,371	195,763	467,675	45,508	1,172,668	1,992,058	67.5	957,313	500,716	343,742	—225,516	462,490
	3 mos.	681	6,394,163	1,042,033	7,933,379	544,276	1,469,704	136,573	3,325,455	5,806,108	73.2	2,127,271	966,874	503,834	317,527	866,860
Central Vermont	March	455	517,396	34,543	596,111	58,521	118,135	13,579	279,882	494,147	82.9	101,964	76,536	36,682	—113,292	62,984
	3 mos.	455	1,443,960	122,722	1,700,494	156,536	321,904	44,327	816,881	1,410,750	83.0	289,744	215,390	99,685	—49,857	178,047
Chesapeake & Ohio	March	3,106	12,433,126	258,419	13,099,285	1,190,970	2,183,743	195,335	2,792,786	6,761,775	51.6	6,337,510	4,969,434	5,061,494	3,129,382	5,744,545
	3 mos.	3,106	30,901,188	704,621	32,625,661	3,503,228	5,633,463	579,647	7,527,204	18,340,333	56.2	14,285,328	10,220,050	10,586,770	11,609,595	12,639,448
Chicago & Eastern Illinois	March	930	1,310,697	117,067	1,608,792	139,916	226,114	59,273	547,078	1,041,215	64.7	567,577	477,577	337,345	108,115	389,018
	3 mos.	930	3,571,058	363,425	4,408,394	415,558	668,075	175,214	1,612,008	3,081,966	69.9	1,326,428	1,056,428	620,790	277,509	769,139
Chicago & Illinois Midland	March	131	397,501	1,311	406,115	23,055	66,411	16,576	95,100	219,242	54.0	186,873	143,375	130,962	68,324	144,567
	3 mos.	131	1,110,777	3,769	1,136,117	73,088	206,944	54,394	274,599	666,556	58.7	469,561	370,532	340,340	233,346	381,174
Chicago & North Western	March	8,404	5,713,858	794,275	7,296,706	799,479	1,885,270	170,890	3,030,960	6,243,538	85.6	1,053,168	348,371	188,512	49,271	601,847
	3 mos.	8,404	15,429,054	2,547,865	20,151,895	2,291,830	5,420,349	522,602	8,976,407	18,279,673	90.7	1,872,222	—215,517	—771,322	—825,914	469,365
Chicago, Burlington & Quincy	March	8,976	7,224,292	625,839	8,720,612	708,879	1,546,208	240,774	3,048,675	5,925,089	67.9	2,795,523	2,053,692	1,705,178	1,196,207	2,101,354
	3 mos.	8,976	19,755,351	1,988,605	24,134,048	2,066,806	4,491,013	711,660	9,076,187	17,519,894	72.6	6,614,154	4,437,252	3,329,599	2,992,242	4,527,341
Chicago Great Western	March	1,505	1,521,165	48,639	1,666,337	246,450	269,936	57,725	604,678	1,234,403	74.1	431,934	335,343	152,736	90,876	196,372
	3 mos.	1,505	4,178,847	140,508	4,596,407	725,071	763,684	175,421	1,830,807	3,658,860	79.6	937,547	653,455	72,598	—315,581	203,582
Chicago, Indianapolis & Louisville	March	575	809,477	52,829	968,585	85,224	206,088	30,148	379,099	733,990	75.8	234,595	189,519	80,383	21,149	117,612
	3 mos.	575	2,307,628	154,841	2,758,640	242,800	617,611	87,123	1,099,592	2,157,475	78.2	601,165	451,683	132,147	138,975	243,412
Chicago, Milw., St. Paul & Pacific	March	11,115	7,680,549	611,395	9,156,833	1,065,321	1,866,768	222,761	3,497,531	7,028,447	76.8	2,128,386	1,437,031	1,049,098	941,593	1,500,895
	3 mos.	11,115	21,324,910	1,773,065	25,485,503	2,671,140	5,246,686	642,395	10,466,987	20,125,813	79.0	5,359,690	3,184,335	1,999,254	1,420,655	3,349,491

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REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MARCH AND THREE MONTHS OF CALENDAR YEAR 1937—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: After depreciation 1937	After depreciation 1936	Before depreciation
Chicago, Rock Island & Pacific	March	7,532	$5,354,016	$647,776	$6,555,724	$795,443	$1,335,627	$220,445	$2,635,028	$5,384,200	82.1	$1,171,524	$659,921	$392,320	—$81,916	$730,587
	3 mos.	7,532	14,573,713	1,949,144	18,063,745	2,082,941	3,632,761	652,842	7,889,463	15,472,149	85.7	2,591,596	1,046,821	215,603	—1,024,504	1,234,805
Chicago, Rock Island & Gulf	March	626	291,619	29,322	403,126	56,450	48,620	17,681	137,713	285,718	70.9	117,408	91,816	27,065	44,488	30,816
	3 mos.	626	733,449	95,424	1,078,028	141,934	116,754	53,484	398,388	786,505	73.0	291,523	216,152	20,838	86,570	32,109
Chicago, St. Paul, Minneap. & Om.	March	1,648	1,166,380	124,296	1,386,947	104,176	314,179	35,087	684,209	1,219,482	87.9	167,465	53,798	—50,027	—128,215	—635
	3 mos.	1,648	3,276,882	385,765	3,932,342	324,880	846,007	107,109	2,235,516	3,754,963	95.5	177,379	—161,521	—485,494	—402,013	—337,332
Clinchfield Railroad	March	309	716,634	4,081	727,356	43,138	119,361	19,584	126,105	323,101	44.4	404,255	356,530	385,297	203,246	421,687
	3 mos.	309	1,843,726	11,949	1,873,301	119,096	343,564	56,626	356,794	920,773	49.2	952,528	810,950	919,203	739,402	1,031,262
Colorado & Southern	March	956	569,235	27,463	660,747	49,885	134,743	14,753	262,605	497,539	75.3	163,208	95,126	75,984	1,116	107,237
	3 mos.	956	1,570,107	90,981	1,834,200	145,350	378,144	40,368	769,756	1,437,950	78.4	396,250	193,980	119,556	—6,622	213,386
Fort Worth & Denver City	March	902	489,506	39,155	534,362	43,717	97,532	18,009	174,518	367,511	68.8	166,851	128,730	89,673	81,852	106,817
	3 mos.	902	1,347,046	134,996	1,469,066	127,893	258,184	51,460	503,080	1,042,855	71.0	426,211	314,871	221,286	232,731	272,777
Columbus & Greenville	March	167	90,944	7,860	105,302	23,316	15,981	4,264	37,396	91,241	86.7	14,061	7,647	4,205	7,868	7,050
	3 mos.	167	287,061	24,400	329,763	61,471	44,558	11,896	113,103	262,707	79.7	67,056	47,847	39,244	2,217	47,780
Delaware & Hudson	March	830	2,245,010	98,586	2,429,759	245,885	499,398	48,470	839,599	1,770,572	72.9	659,187	497,045	492,873	—45,907	581,570
	3 mos.	830	5,960,457	292,755	6,487,836	681,271	1,450,517	139,945	2,369,237	5,048,955	77.8	1,438,881	960,185	950,517	517,272	1,217,300
Delaware, Lackawanna & Western	March	984	3,531,973	587,002	4,616,625	269,266	851,609	114,904	1,968,673	3,398,351	73.6	1,218,274	793,274	802,222	89,352	1,012,916
	3 mos.	984	9,357,570	1,697,706	12,426,924	730,388	2,365,774	339,319	5,677,768	9,681,878	77.9	2,745,046	1,530,046	1,523,649	928,497	2,156,125
Denver & Rio Grande Western	March	2,576	1,906,524	117,568	2,133,379	360,272	663,224	58,279	761,289	1,938,474	90.9	194,905	—17,016	—46,393	28,347	49,081
	3 mos.	2,576	5,605,448	293,281	6,201,239	707,546	1,823,229	169,179	2,404,871	5,393,712	87.0	807,527	180,248	103,455	345,354	390,600
Denver & Salt Lake	March	232	202,140	6,694	217,273	31,229	62,098	2,327	63,654	168,229	77.4	49,044	24,251	57,931	37,304	66,105
	3 mos.	232	791,729	22,852	842,634	70,591	178,699	7,509	226,484	511,342	60.7	331,292	257,277	337,293	360,875	362,603
Detroit & Mackinac	March	242	64,063	2,947	73,051	8,205	13,544	935	25,663	52,068	71.3	20,983	18,030	13,007	—4,967	15,664
	3 mos.	242	162,554	10,520	189,587	23,138	36,587	2,865	74,527	147,924	78.0	41,663	32,977	18,054	—23,600	26,105
Detroit & Toledo Shore Line	March	50	470,479	.....	474,441	27,177	25,847	8,333	97,651	166,775	35.2	307,666	254,389	182,414	102,059	188,551
	3 mos.	50	1,216,698	.....	1,225,489	60,542	69,779	24,021	273,676	451,847	36.9	773,642	636,049	436,413	395,756	453,993
Detroit, Toledo & Ironton	March	472	814,118	204	843,005	88,468	79,295	12,034	160,802	359,796	42.7	483,209	396,314	330,584	330,761	351,432
	3 mos.	472	2,373,158	593	2,447,344	239,076	255,995	34,611	470,677	1,059,423	43.3	1,387,921	1,135,598	945,176	912,333	1,007,730
Duluth, Missabe & Northern	March	539	128,685	3,656	155,980	120,310	268,176	4,122	165,413	605,611	388.3	—449,631	—672,522	—675,338	—446,116	—609,896
	3 mos.	539	356,412	7,905	433,011	362,511	755,335	12,271	473,721	1,746,165	403.3	—1,313,154	—1,979,052	—1,989,615	—1,301,628	—1,793,630
Duluth, Winnipeg & Pacific	March	178	144353	1,762	149,817	16,601	22,821	1,937	55,651	101,568	67.8	48,249	37,450	18,881	—1,603	21,805
	3 mos.	178	371,719	5,431	386,941	49,599	60,989	5,790	163,922	294,154	76.0	92,787	63,827	14,037	19,307	22,880
Elgin, Joliet & Eastern	March	434	2,151,588	2	2,394,219	140,750	436,887	15,106	742,721	1,389,051	58.0	1,005,168	828,095	652,119	359,927	725,788
	3 mos.	434	5,336,999	20	6,029,924	406,559	1,250,241	44,611	2,077,115	3,941,013	65.4	2,088,911	1,640,573	1,253,567	864,693	1,474,659
Erie	March	2,284	6,865,024	431,925	7,857,075	507,305	1,456,820	171,427	2,728,478	5,172,503	65.8	2,684,572	2,134,629	1,893,545	1,153,873	2,211,349
	3 mos.	2,284	18,671,257	1,227,346	21,369,510	1,428,481	4,072,169	512,639	7,763,275	14,696,293	68.8	6,673,217	5,045,469	4,194,868	3,381,225	5,148,573
New Jersey & New York	March	45	18,927	47,064	68,442	4,721	15,064	456	49,903	71,752	104.8	—3,310	—10,519	—24,345	—27,599	—24,334
	3 mos.	45	46,340	135,537	187,916	13,383	46,859	1,515	142,235	208,938	111.2	—21,022	—42,318	—84,388	—75,484	—84,355
New York, Susq. & Western	March	225	294,970	24,283	333,290	22,451	31,396	4,482	130,009	199,599	59.9	133,691	101,799	62,916	19,037	68,348
	3 mos.	225	799,402	69,025	905,333	69,826	93,114	13,474	371,887	585,986	64.7	319,347	224,319	117,862	164,960	134,204
Florida East Coast	March	684	699,411	497,698	1,324,486	94,648	153,811	24,339	392,450	746,016	56.3	578,470	494,017	433,435	360,475	472,447
	3 mos.	684	1,947,714	1,424,767	3,729,855	276,181	457,183	73,961	1,109,873	2,159,744	57.9	1,570,111	1,318,287	1,142,511	852,557	1,258,943
Fort Smith & Western	March	249	74,081	876	78,179	20,316	8,537	6,408	23,321	62,565	80.0	15,614	14,114	5,528	—3,612	6,094
	3 mos.	249	213,076	2,460	225,757	48,408	24,770	18,743	70,524	174,940	77.5	50,817	46,317	20,613	17,359	22,311
Georgia Railroad	March	329	340,689	14,285	384,827	29,666	61,908	17,613	140,794	264,119	68.6	120,708	105,156	106,163	63,558	117,184
	3 mos.	329	837,728	41,415	959,097	81,655	172,181	54,860	389,380	740,481	77.2	218,616	174,121	190,940	132,645	223,912
Georgia & Florida	March	407	128,841	2,625	135,867	26,619	18,826	8,905	46,742	107,185	78.9	28,682	20,547	11,340	10,723	16,597
	3 mos.	407	327,374	6,983	347,481	70,628	52,064	25,205	122,510	288,022	82.9	59,459	36,070	19,027	—8,989	34,787
Grand Trunk Western	March	1,032	2,417,979	68,222	2,651,311	231,046	405,540	36,916	919,741	1,685,014	63.6	966,297	830,048	695,938	314,499	780,331
	3 mos.	1,032	5,698,445	237,876	6,387,978	579,690	1,148,001	109,868	2,513,900	4,617,452	72.3	1,770,526	1,378,434	912,984	837,999	1,168,997
Can. Nat'l Lines in New Eng.	March	172	96,031	7,302	113,278	25,755	19,445	2,339	73,310	129,498	114.3	—16,220	—31,162	—59,941	—39,134	—57,000
	3 mos.	172	297,389	19,406	346,681	60,939	67,850	6,928	201,634	364,400	105.1	—17,719	—62,542	—152,349	—163,150	—143,657
Great Northern	March	8,093	5,056,792	354,187	5,925,551	569,450	1,342,903	177,623	2,296,764	4,654,205	78.5	1,271,346	657,204	613,195	744,884	914,891
	3 mos.	8,093	13,646,338	1,042,121	16,151,402	1,726,751	3,600,436	523,400	7,062,779	13,721,391	85.0	2,430,011	717,765	579,815	439,868	1,485,304
Green Bay & Western	March	234	150,348	691	155,585	28,502	19,166	6,166	47,887	105,655	67.9	49,930	39,634	34,114	22,269	36,113
	3 mos.	234	401,570	1,989	416,223	80,388	52,552	19,276	139,357	303,789	72.9	112,434	82,583	59,762	50,068	74,159

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NO. 14 OF A SERIES OF FAMOUS ARCHES OF THE WORLD

HELL GATE BRIDGE

The three miles of New York City's Hell Gate Bridge centers upon the 1000 ft. span. This span, the longest steel arch railroad span in the world, is the keynote of one of the greatest time savers in railroad history. It has eliminated the ferrying of passenger and freight trains between New York and New Jersey, as well as providing a short cut for trains between New England and the South. » » » The economy effected by the Security Sectional Arch is as important to railroad operation and maintenance as this famous bridge. Only locomotives with properly designed Security Sectional Arches, fully maintained, can attain full efficiency and economy in operation.

* * *

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MARCH AND THREE MONTHS OF CALENDAR YEAR 1937—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of: Way and structures	Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: After depreciation 1937	After depreciation 1936	Before depreciation
Gulf & Ship Island	March	259	$148,630	$9,766	$177,245	$17,960	$17,981	$3,354	$74,135	$120,341	67.9	$56,904	$38,879	$28,601	$26,340	$33,314
	3 mos.	259	331,129	25,598	399,700	56,348	47,142	9,925	196,881	329,970	82.6	69,730	16,562	—13,474	—12,339	—1,023
Gulf, Mobile & Northern	March	936	641,615	25,708	694,403	81,870	93,300	36,941	176,750	420,448	60.55	273,955	213,055	143,402	107,140	164,270
	3 mos.	936	1,697,204	74,616	1,843,137	226,709	261,149	113,040	500,003	1,196,147	64.90	646,990	488,090	294,778	240,755	346,961
Illinois Central	March	4,966	7,910,891	859,440	9,475,391	762,586	1,682,039	220,576	3,588,892	6,704,010	70.8	2,771,381	2,019,974	1,856,183	1,008,821	2,385,512
	3 mos.	4,966	20,688,609	2,468,470	24,879,367	2,344,543	5,063,383	675,462	10,205,818	19,615,631	78.8	5,263,736	3,103,353	2,499,122	3,029,649	4,090,974
Yazoo & Mississippi Valley	March	1,619	1,323,533	76,293	1,478,957	82,397	193,104	35,772	523,757	898,548	60.8	580,409	427,568	360,937	156,168	401,835
	3 mos.	1,619	3,421,535	223,543	3,877,979	343,019	557,913	108,938	1,477,647	2,672,049	68.9	1,205,930	750,335	539,829	207,343	660,808
Illinois Central System	March	6,586	9,234,424	935,733	10,954,348	844,983	1,875,143	256,348	4,112,649	7,602,558	69.4	3,351,790	2,445,460	2,227,120	1,174,989	2,797,347
	3 mos.	6,586	24,110,144	2,692,013	28,757,346	2,687,562	5,621,296	784,400	11,683,465	22,287,680	77.5	6,469,666	3,847,498	3,068,251	3,259,892	4,781,082
Illinois Terminal	March	504	471,958	76,658	588,539	49,968	79,318	16,428	186,686	352,927	59.97	235,612	192,490	164,525	119,797	183,331
	3 mos.	504	1,288,269	216,296	1,618,486	133,704	234,415	47,598	524,597	999,882	61.78	618,604	491,872	413,306	375,349	469,658
Kansas City Southern	March	878	1,084,409	16,362	1,209,326	127,093	174,459	50,040	353,964	776,408	64.2	432,918	322,918	272,740	220,722	307,073
	3 mos.	878	3,053,115	48,774	3,417,447	358,043	512,303	147,573	1,040,419	2,262,625	66.2	1,154,822	824,822	660,532	612,854	756,287
Kansas, Oklahoma & Gulf	March	326	193,376	486	196,169	22,572	17,665	8,910	42,508	101,509	51.7	94,660	70,697	53,390	52,931	55,484
	3 mos.	326	527,747	1,683	536,352	52,985	45,788	26,447	119,961	272,576	50.8	263,776	205,750	160,109	200,229	166,387
Lake Superior & Ishpeming	March	156	48,030	121	51,030	22,649	33,123	700	25,830	88,626	173.7	—37,596	—56,713	—56,866	—56,690	—43,632
	3 mos.	156	130,201	398	138,038	60,343	85,681	2,049	73,832	241,237	174.8	—103,202	—160,348	—159,483	—174,038	—119,782
Lehigh & Hudson River	March	96	144,663	101	145,463	8,137	22,029	3,998	53,839	95,744	65.8	49,719	34,678	20,489	1,492	24,165
	3 mos.	96	390,317	308	392,794	30,659	65,006	11,706	140,074	270,521	68.9	122,273	81,406	45,656	26,582	56,677
Lehigh & New England	March	215	339,409	249	341,610	29,812	47,080	6,387	126,772	228,570	66.9	113,040	95,936	102,062	—16,890	120,860
	3 mos.	215	877,768	704	884,770	85,683	210,609	20,162	351,737	716,598	81.0	168,172	122,951	140,502	143,296	197,042
Lehigh Valley	March	1,322	4,130,660	241,530	4,642,805	261,866	822,282	117,175	1,833,845	3,204,932	69.0	1,437,873	1,134,830	944,244	163,193	1,133,586
	3 mos.	1,322	11,230,520	675,758	12,639,204	732,072	2,456,804	340,018	5,324,655	9,364,179	74.1	3,275,025	2,366,353	1,729,508	1,136,275	2,299,721
Louisiana & Arkansas	March	606	486,430	8,094	512,128	68,756	70,113	31,980	155,453	347,739	67.9	164,389	126,133	98,045	110,454	113,022
	3 mos.	606	1,333,839	23,856	1,406,600	195,671	193,951	90,939	423,587	970,226	69.0	436,374	332,117	262,560	309,797	309,280
Louisiana, Arkansas & Texas	March	255	109,962	180	114,781	22,044	10,820	4,943	43,151	86,397	75.3	28,384	23,430	5,495	343	6,102
	3 mos.	255	297,988	553	310,686	66,132	30,505	14,157	119,373	247,028	79.3	63,658	48,702	—610	6,057	1,719
Louisville & Nashville	March	4,940	7,807,083	589,512	8,987,980	856,962	1,726,482	198,486	2,927,192	6,049,315	67.3	2,938,665	2,062,425	2,202,249	1,199,596	2,551,368
	3 mos.	4,942	18,929,799	1,701,501	22,143,683	2,299,183	4,906,648	586,445	7,883,881	16,655,056	75.2	5,488,627	3,507,135	3,867,620	3,889,543	4,918,763
Maine Central	March	1,009	1,110,190	71,694	1,250,094	158,037	186,924	9,614	412,789	814,057	65.1	436,037	362,840	299,271	—81,986	342,068
	3 mos.	1,009	2,969,780	223,575	3,374,646	438,803	540,910	36,460	1,174,562	2,313,456	68.6	1,061,190	849,741	629,764	70,784	758,668
Midland Valley	March	351	107,830	1	109,838	15,426	11,475	2,839	30,867	67,473	61.4	42,365	32,214	22,683	18,908	24,823
	3 mos.	351	346,777	33	353,115	34,209	27,064	7,840	92,336	180,728	51.2	172,387	142,710	115,023	146,837	121,442
Minneapolis & St. Louis	March	1,530	659,584	12,410	706,514	79,073	120,189	41,500	305,829	583,938	82.7	122,576	78,066	34,929	63,797	61,268
	3 mos.	1,530	1,748,526	34,523	1,885,775	227,829	356,769	127,679	908,246	1,733,610	91.9	152,165	37,579	—110,139	—63,602	—32,548
Minneapolis, St. Paul & S. S. Marie	March	4,301	1,952,853	91,613	2,195,264	222,972	430,797	59,380	937,646	1,761,580	80.2	433,684	350,826	229,211	59,934	331,974
	3 mos.	4,301	5,106,201	265,613	5,797,262	745,240	1,253,427	178,265	2,812,076	5,300,813	91.4	496,449	150,035	—225,726	—449,785	83,679
Duluth, South Shore & Atlantic	March	549	217,137	15,009	246,001	25,765	42,107	4,548	90,951	170,509	69.3	75,492	61,451	52,569	18,775	59,787
	3 mos.	549	524,250	42,084	602,570	85,674	113,834	12,865	261,416	492,036	81.7	110,534	70,048	39,480	4,236	61,390
Spokane International	March	163	57,323	1,526	64,504	10,485	6,624	2,189	23,834	47,737	74.0	16,767	11,987	8,737	2,998	10,374
	3 mos.	163	160,032	4,597	181,717	36,311	19,060	5,909	71,696	147,671	81.3	34,046	19,450	9,557	6,250	14,468
Mississippi Central	March	150	77,856	2,145	82,356	19,129	12,119	7,141	21,115	64,547	78.4	17,809	12,859	7,177	12,617	9,407
	3 mos.	150	210,368	6,200	223,569	54,646	35,494	19,998	62,030	187,740	84.0	35,829	21,349	6,556	21,156	13,243
Missouri-Arkansas	March	364	88,241	1,015	94,707	22,061	11,422	5,855	34,578	78,030	82.4	16,677	13,260	3,191	15,326	4,065
	3 mos.	364	246,975	3,517	266,659	79,479	33,342	17,011	100,600	243,206	91.2	23,453	12,249	—16,385	11,548	—13,774
Missouri-Illinois	March	205	140,078	560	142,727	277,787	12,039	3,228	38,814	87,943	61.6	54,784	48,060	31,509	—8,030	34,329
	3 mos.	205	349,025	1,779	356,354	62,467	34,567	8,399	110,669	233,121	65.4	123,233	103,809	60,662	—3,327	69,754
Missouri-Kansas-Texas Lines	March	3,293	2,304,131	171,076	2,728,787	313,417	425,485	119,104	966,700	1,966,630	72.1	762,157	609,294	399,926	132,672	498,560
	3 mos.	3,293	6,081,737	535,133	7,300,798	836,282	1,110,187	364,076	2,826,403	5,574,448	76.4	1,726,350	1,388,146	757,645	254,289	1,053,256
Missouri Pacific	March	7,171	7,381,008	436,560	8,444,939	1,139,580	1,522,419	245,999	2,986,041	6,216,217	73.6	2,228,722	1,718,979	1,153,625	504,730	1,516,928
	3 mos.	7,171	20,429,262	1,381,364	23,588,602	2,662,345	4,388,554	741,087	8,891,888	17,644,023	74.8	5,944,579	4,436,905	2,814,285	2,079,980	3,905,953
Gulf Coast Lines	March	1,763	1,753,239	43,728	1,869,462	203,966	213,913	46,486	467,615	983,087	52.59	886,375	809,585	564,575	182,317	599,819
	3 mos.	1,763	4,956,369	123,792	5,275,063	526,265	613,914	140,686	1,328,489	2,759,088	52.30	2,515,975	2,291,297	1,671,279	624,322	1,777,042
International Great Northern	March	1,154	1,002,384	95,615	1,215,141	145,636	204,598	31,371	486,762	931,921	76.69	283,220	221,583	79,067	—8,122	111,328
	3 mos.	1,154	2,709,894	279,601	3,305,752	428,803	616,893	94,449	1,389,382	2,711,707	82.03	594,045	413,205	46,718	—21,481	143,498

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An Efficiency Factor in Modern Steam Locomotives

—Reclamation of waste heat through feed water heating

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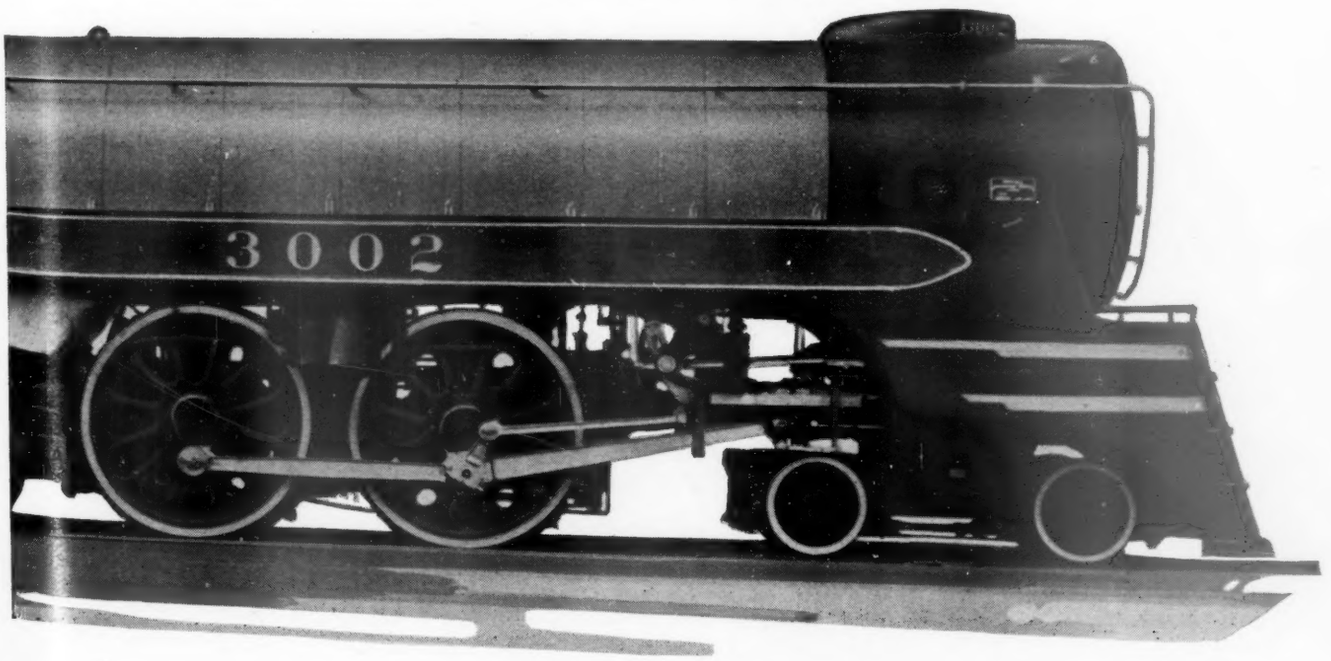
The Elesco feed water heater reclaims 12%-15% of the waste heat in the exhaust steam.

The Elesco feed water heater employs one pump only.

The Elesco feed water heater design is universally accepted.

The Elesco feed water heater either increases boiler capacity or decreases fuel and water consumption.

The five new 4-4-4- type locomotives of the Canadian Pacific Railway have Elesco Feed Water Heaters



REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MARCH AND THREE MONTHS OF CALENDAR YEAR 1937—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: After depreciation 1937	After depreciation 1936	Before depreciation
Mobile & Ohio	March	1,201	$1,066,791	$29,820	$1,167,200	$119,264	$194,893	$43,541	$395,495	$800,475	68.6	$366,725	$308,491	$241,664	$75,459	$292,009
	3 mos.	1,201	2,623,678	84,218	2,873,636	338,057	507,443	128,167	1,122,823	2,230,727	77.6	642,909	469,283	292,289	97,855	443,330
Monongahela	March	171	479,195	949	485,395	47,338	38,462	464	99,335	188,899	38.9	296,496	261,763	175,509	78,340	181,016
	3 mos.	171	1,307,549	2,584	1,321,948	128,897	102,624	1,327	281,319	523,641	39.6	798,307	695,040	437,788	384,506	454,310
Montour	March	56	216,505	.....	217,917	12,607	40,729	968	57,782	118,566	54.4	99,351	75,262	91,266	37,986	102,244
	3 mos.	56	546,056	.....	550,878	33,424	116,463	3,128	159,187	337,721	61.3	213,157	154,637	198,658	174,050	231,551
Nashville, Chattanooga & St. Louis	March	1,117	1,186,704	108,129	1,437,900	172,905	293,442	59,921	503,385	1,098,026	76.4	339,874	256,412	229,784	169,499	272,019
	3 mos.	1,122	3,078,807	328,678	3,852,537	450,374	837,373	197,324	1,455,667	3,142,167	81.6	710,370	466,989	432,604	229,289	559,454
Nevada Northern	March	165	49,247	1,874	56,351	8,854	3,383	940	11,429	29,033	51.5	27,318	18,632	19,535	12,273	25,489
	3 mos.	165	140,397	4,466	160,368	26,051	10,841	2,965	35,036	88,017	54.9	72,351	47,625	51,117	42,095	68,978
New York Central	March	11,219	26,291,477	5,002,046	34,832,708	3,170,377	6,919,901	551,765	12,444,526	24,599,406	70.6	10,233,302	7,585,674	6,284,476	3,398,320	7,621,810
	3 mos.	11,220	69,000,293	15,429,590	94,024,618	8,961,866	19,218,648	1,644,342	35,456,883	69,860,009	74.3	24,164,609	17,097,163	13,183,938	8,775,989	17,183,636
Pittsburgh & Lake Erie	March	233	2,094,615	63,085	2,231,810	144,842	860,319	26,457	634,811	1,754,950	78.6	476,860	298,540	468,147	218,094	611,021
	3 mos.	233	5,805,062	177,785	6,178,695	428,196	2,354,292	82,587	1,919,433	5,044,712	81.7	1,133,983	641,856	1,166,058	773,038	1,594,318
New York, Chicago & St. Louis	March	1,704	3,920,275	62,858	4,103,433	342,900	667,328	118,782	1,277,424	2,542,073	61.9	1,561,360	1,278,531	957,689	739,552	1,093,518
	3 mos.	1,704	10,931,572	190,15[illegible]	11,453,766	1,073,488	1,755,528	352,688	3,667,875	7,252,710	63.3	4,201,056	3,367,706	2,462,530	2,015,584	2,867,113
New York, New Haven & Hartford	March	2,033	4,335,986	2,064,554	7,233,328	657,483	1,245,580	97,875	2,726,715	5,182,735	71.7	2,050,593	1,550,593	926,055	—375,934	1,212,295
	3 mos.	2,033	11,764,964	6,232,813	20,254,713	1,860,590	3,499,057	328,827	7,677,882	14,728,590	72.7	5,526,123	4,026,123	2,219,698	756,792	3,076,796
New York Connecting	March	20	264,169	.....	279,403	8,283	8,301	.....	33,668	51,506	18.4	227,897	190,227	160,893	109,663	160,893
	3 mos.	20	717,499	.....	751,369	30,909	21,837	.....	80,750	137,003	18.2	614,366	502,136	433,262	368,603	433,262
New York, Ontario & Western	March	576	482,770	6,358	540,777	42,911	116,033	11,618	285,958	484,197	89.5	56,580	4,867	—24,576	22,778	—1,168
	3 mos.	576	1,500,273	21,999	1,668,777	147,857	361,542	33,582	834,551	1,425,454	85.4	243,323	89,578	—37,798	210,168	34,452
Norfolk & Western	March	2,202	8,658,317	172,609	9,100,587	793,370	1,440,001	127,578	1,864,087	4,460,550	49.0	4,640,037	3,480,553	3,755,332	2,806,006	4,145,220
	3 mos.	2,204	23,046,908	519,952	24,253,124	2,644,915	4,006,279	396,014	5,379,309	13,132,187	54.1	11,120,937	7,667,552	8,492,406	7,778,529	9,657,117
Norfolk Southern	March	834	404,627	7,504	429,218	75,339	51,259	23,065	148,849	316,597	73.8	112,621	78,943	55,902	26,787	66,804
	3 mos.	834	1,012,833	19,730	1,082,592	211,117	150,372	65,574	413,547	898,090	83.0	184,502	83,402	33,873	19,377	66,735
Northern Pacific	March	6,726	4,731,826	317,958	5,522,566	437,584	1,268,250	169,124	2,035,813	4,259,080	77.1	1,263,486	690,231	1,072,244	568,809	1,340,519
	3 mos.	6,726	12,343,454	945,817	14,588,642	1,348,335	3,422,799	464,236	6,196,273	12,465,321	85.5	2,123,321	428,035	1,535,881	295,054	2,341,252
Northwestern Pacific	March	351	220,089	66,448	314,203	56,137	55,891	4,791	161,847	292,797	93.2	21,406	5,166	—2,439	—8,879	11,175
	3 mos.	351	607,086	184,308	868,234	158,294	157,757	12,475	471,716	843,174	97.1	25,060	—21,276	—49,901	—35,369	—9,051
Oklahoma City-Ada-Atoka	March	132	45,922	389	48,699	12,551	1,089	731	12,147	28,937	59.4	19,762	17,332	10,326	25,106	10,333
	3 mos.	132	114,139	1,233	122,373	35,066	3,241	2,313	33,715	80,420	65.7	41,953	33,913	14,019	57,897	14,041
Pennsylvania	March	10,308	31,391,469	5,858,228	40,706,521	4,155,621	8,842,845	659,181	14,206,042	29,934,425	73.5	10,772,096	7,111,088	6,847,453	3,750,493	8,963,840
	3 mos.	10,308	87,545,814	17,696,175	114,698,370	12,366,882	25,522,296	1,994,581	41,320,242	87,347,366	76.2	27,351,004	17,604,639	16,602,390	13,719,190	22,681,361
Long Island	March	396	603,103	1,306,340	2,005,206	219,207	392,992	17,637	1,034,149	1,723,654	86.0	281,552	85,780	—63,487	19,953	34,174
	3 mos.	396	1,597,333	3,818,174	5,681,580	663,620	1,252,255	52,866	2,963,857	5,141,929	90.5	539,651	—3,967	—457,006	—28,433	—163,906
Penna.-Reading Seashore Lines	March	412	282,322	136,091	439,365	71,093	85,629	9,404	268,403	462,545	105.3	—23,180	—99,927	—173,846	—220,616	—166,269
	3 mos.	412	754,031	352,956	1,163,590	191,070	256,751	26,099	785,648	1,342,860	115.4	—179,270	—399,124	—613,081	—551,920	—590,935
Pere Marquette	March	2,115	3,147,546	53,671	3,356,946	324,185	612,532	65,378	1,110,399	2,208,590	65.8	1,148,356	961,782	819,567	537,822	1,032,639
	3 mos.	2,115	7,453,644	203,577	8,090,089	932,977	1,651,319	195,675	2,953,924	6,021,314	74.4	2,068,775	1,510,853	1,306,234	1,181,140	1,945,397
Pittsburg & Shawmut	March	100	86,828	422	88,155	14,120	18,306	1,209	24,839	63,001	71.5	25,154	22,722	23,866	—8,147	28,180
	3 mos.	100	226,185	1,238	230,015	43,786	66,229	3,686	65,434	191,142	83.1	38,873	31,746	35,617	4,834	48,577
Pittsburgh & West Virginia	March	138	398,198	1,920	417,306	47,159	99,532	19,944	83,238	273,957	65.6	143,349	114,870	151,212	100,896	172,786
	3 mos.	138	1,066,435	6,440	1,125,780	146,306	252,965	56,457	226,779	753,548	66.9	372,232	288,408	381,049	309,114	445,960
Pittsburg, Shawmut & Northern	March	190	109,683	13	111,547	13,776	20,354	1,431	39,826	81,791	73.3	29,756	26,028	15,223	4,361	17,077
	3 mos.	190	287,399	41	291,978	41,067	59,850	4,280	109,102	233,571	80.0	58,407	47,562	23,875	23,476	29,496
Reading	March	1,452	5,396,113	328,520	5,982,370	363,113	983,683	71,682	2,056,633	3,700,647	61.9	2,281,723	1,699,677	1,718,252	834,525	1,975,015
	3 mos.	1,453	14,395,486	942,294	16,020,832	1,016,813	2,990,101	221,696	5,849,529	10,744,542	67.1	5,276,290	3,808,318	3,877,507	3,068,637	4,654,281
Richmond, Fredericksburg & Ptmc	March	117	403,941	298,780	876,976	61,057	147,325	10,176	318,006	596,514	68.2	280,462	208,175	149,538	79,312	175,655
	3 mos.	117	1,179,082	892,369	2,524,277	174,242	401,864	28,099	962,289	1,735,661	68.8	788,616	584,020	392,046	152,892	470,231
Rutland	March	407	215,534	30,520	314,136	36,631	62,906	10,293	179,099	305,160	97.1	8,976	—10,392	—6,434	—56,685	4,896
	3 mos.	407	570,040	98,605	863,508	110,977	185,062	31,024	452,068	827,731	95.9	35,777	—17,371	—12,726	—105,420	21,266
St. Louis-San Francisco	March	4,926	3,595,412	291,707	4,265,027	617,667	930,510	110,083	1,615,181	3,447,775	80.8	817,252	498,388	507,948	226,265	770,498
	3 mos.	4,926	10,302,886	917,314	12,362,734	1,806,272	2,680,846	331,584	4,789,486	10,150,990	82.1	2,211,744	1,198,942	1,156,257	842,705	1,943,169
Fort Worth & Rio Grande	March		INCLUDED IN ATCHISON, TOPEKA & SANTA FE													
	3 mos.															

Continued on next left-hand page

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MARCH AND THREE MONTHS OF CALENDAR YEAR 1937—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: After depreciation 1937	After depreciation 1936	Before depreciation
St. Louis, San Francisco & Tex...	March	261	$122,352	$475	$128,554	$27,942	$12,037	$7,076	$53,667	$108,843	84.7	$19,711	$11,321	—$25,197	—$55,504	—$25,095
	3 mos.	261	303,401	1,010	318,473	81,122	36,016	18,069	157,013	312,296	98.1	6,177	—18,509	—124,107	—170,591	—123,802
St. Louis Southwestern Lines.....	March	1,749	1,885,609	26,490	1,984,216	281,961	350,992	78,589	606,584	1,398,327	70.5	585,889	473,178	303,818	400,205	354,109
	3 mos.	1,749	5,083,282	83,156	5,379,739	763,575	967,466	236,255	1,736,532	3,942,852	73.3	1,436,887	1,104,483	570,519	870,702	722,007
Seaboard Air Line.....	March	4,307	3,372,966	682,778	4,489,365	495,471	727,025	165,498	1,499,422	3,115,959	69.4	1,373,406	1,073,406	882,128	503,543	1,039,703
	3 mos.	4,307	9,205,485	1,977,481	12,389,107	1,435,769	2,122,198	497,374	4,266,703	8,970,075	72.4	3,419,032	2,519,032	1,948,658	656,224	2,421,720
Southern Railway	March	6,639	8,050,199	829,397	9,650,664	1,036,419	1,650,539	152,041	3,150,367	6,312,401	65.4	3,338,263	2,636,324	2,221,561	1,532,757	2,481,919
	3 mos.	6,639	21,696,592	2,552,832	26,422,628	3,033,091	4,699,657	456,895	8,915,630	18,048,128	68.3	8,374,500	6,582,990	5,407,370	3,805,316	6,195,241
Alabama Great Southern.....	March	315	596,753	49,881	691,990	87,503	140,023	11,748	198,995	459,962	66.5	232,028	170,652	145,429	82,713	168,643
	3 mos.	315	1,574,696	159,713	1,862,255	265,762	390,577	35,754	559,094	1,314,152	70.6	548,103	398,954	340,117	165,469	409,946
Cinn., New Orleans & Tex. Pac...	March	336	1,428,558	117,670	1,640,611	182,830	265,541	26,383	385,896	916,487	55.9	724,124	633,268	614,789	393,234	664,731
	3 mos.	336	3,585,960	422,812	4,302,920	584,481	837,660	77,393	1,096,288	2,766,078	64.3	1,536,842	1,221,993	1,151,806	1,081,629	1,301,904
Georgia Southern & Florida.....	March	397	152,038	73,202	257,106	33,331	39,131	1,922	93,956	179,997	70.0	77,109	62,950	48,860	12,158	55,651
	3 mos.	397	403,910	234,368	722,939	95,707	112,628	5,622	262,770	509,970	70.5	212,969	170,676	144,432	42,997	165,030
New Orleans & Northeastern.....	March	204	262,156	17,883	298,436	38,129	40,197	5,726	84,962	179,914	60.3	118,522	79,246	61,437	28,195	67,453
	3 mos.	204	694,356	66,665	813,204	102,786	109,375	16,653	236,502	497,400	61.2	315,804	217,212	167,748	32,627	185,871
Northern Alabama	March	100	81,955	1,679	85,655	9,431	1,571	1,453	22,616	37,051	43.3	48,604	42,611	30,364	13,567	30,412
	3 mos.	100	205,276	5,232	216,587	31,431	4,747	3,923	66,045	111,911	51.7	104,676	89,216	54,208	35,878	54,374
Southern Pacific	March	8,772	11,663,528	1,728,866	14,553,429	1,397,701	2,547,785	354,283	5,834,587	11,072,969	76.1	3,480,470	2,364,484	1,773,366	1,233,615	2,269,996
	3 mos.	8,772	33,219,872	5,331,713	41,811,598	3,973,849	7,042,272	983,383	16,965,715	31,734,109	75.9	10,077,489	6,986,862	5,163,966	2,920,712	6,641,290
Southern Pacific Steamship Lines.	March	...	670,210	25,885	727,568	17,707	91,963	17,905	554,430	701,970	96.5	25,598	5,870	—14,535	2,972	20,591
	3 mos.	...	1,982,374	59,504	2,119,142	49,238	275,425	51,294	1,544,090	1,978,297	93.4	140,845	95,792	49,377	—114,925	154,728
Texas & New Orleans.....	March	4,429	3,688,051	279,492	4,279,182	585,924	771,433	122,029	1,344,598	3,074,284	71.8	1,204,898	877,133	630,120	465,911	762,499
	3 mos.	4,429	10,548,487	852,555	12,241,810	1,646,629	1,997,806	368,469	3,918,737	8,675,086	70.9	3,566,724	2,645,368	1,990,059	882,187	2,390,069
Spokane, Portland & Seattle.....	March	946	702,873	36,206	794,682	80,021	99,507	9,213	261,367	479,621	60.4	315,061	255,574	209,625	49,215	225,145
	3 mos.	946	1,822,662	102,301	2,077,300	217,059	252,225	27,188	809,382	1,394,418	67.1	682,882	496,663	348,782	33,097	395,101
Tennessee Central	March	286	229,701	4,785	248,052	44,668	34,077	6,622	79,305	174,977	70.5	73,075	66,766	48,219	25,064	54,166
	3 mos.	286	606,852	14,484	657,384	109,460	95,367	18,667	224,562	478,118	72.7	179,266	160,689	106,902	108,135	124,729
Texas & Pacific	March	1,948	2,245,650	211,217	2,649,220	280,729	469,020	79,842	802,583	1,772,496	66.9	876,724	673,092	550,405	454,739	647,881
	3 mos.	1,948	6,162,089	616,350	7,310,247	758,380	1,297,166	239,617	2,262,025	4,974,513	68.0	2,335,734	1,781,988	1,399,340	1,170,051	1,691,740
Texas Mexican	March	162	122,234	384	135,373	16,505	19,689	3,739	40,824	88,372	65.3	47,001	39,911	32,713	22,000	34,556
	3 mos.	162	324,192	1,738	360,302	51,271	51,623	10,665	111,095	247,788	68.8	112,514	91,653	69,312	54,073	74,814
Toledo, Peoria & Western.....	March	239	199,408	1	203,009	41,021	13,901	17,679	47,609	130,230	64.1	72,779	43,866	22,621	24,817	35,848
	3 mos.	239	567,150	3	575,046	114,909	37,988	52,071	141,978	377,545	65.7	197,501	143,860	91,062	80,632	130,510
Union Pacific System.....	March	9,918	11,311,224	1,198,782	13,623,962	1,638,080	2,815,064	350,935	4,443,575	10,046,720	73.7	3,577,242	2,325,592	1,832,116	916,940	2,381,504
	3 mos.	9,918	31,044,288	3,438,629	37,671,539	3,754,585	8,101,441	991,452	13,767,597	29,006,669	77.0	8,664,870	4,913,420	3,394,596	2,342,201	5,048,016
Utah	March	111	134,209	.....	134,320	17,374	45,542	402	31,797	99,815	74.3	34,505	20,934	17,111	8,371	26,987
	3 mos.	111	485,645	.....	486,266	61,932	153,887	1,293	126,176	356,962	73.4	129,304	80,786	56,753	76,176	86,417
Virginian	March	618	1,660,768	3,576	1,736,250	115,187	283,090	22,713	274,144	725,218	41.8	1,011,032	781,032	868,335	660,036	963,363
	3 mos.	618	4,776,864	10,245	4,997,292	326,110	829,812	64,500	791,392	2,100,379	42.0	2,896,913	2,231,913	2,461,973	2,071,539	2,746,636
Wabash	March	2,446	4,073,504	185,987	4,520,683	446,563	966,286	147,423	1,573,308	3,289,129	72.8	1,231,554	1,003,061	718,925	490,884	895,845
	3 mos.	2,446	10,910,104	594,077	12,252,953	1,185,495	2,396,537	440,448	4,487,940	8,949,124	73.0	3,303,829	2,635,882	1,714,652	1,312,516	2,245,344
Ann Arbor	March	293	388,439	2,816	398,740	23,758	100,557	12,226	152,909	300,956	75.5	97,784	77,230	59,481	45,793	79,414
	3 mos.	293	1,034,572	7,905	1,064,075	67,774	255,724	35,932	445,599	837,148	78.7	226,927	166,587	115,700	83,196	175,488
Western Maryland	March	882	1,736,020	6,720	1,787,837	198,497	337,467	43,125	426,802	1,068,033	59.7	719,804	584,804	582,601	356,581	674,787
	3 mos.	882	4,727,680	19,276	4,857,949	559,342	995,235	120,517	1,179,382	3,013,511	62.0	1,844,438	1,489,438	1,507,948	1,191,629	1,784,737
Western Pacific	March	1,207	1,167,185	28,605	1,235,548	208,715	317,883	57,341	541,565	1,163,636	94.2	71,912	—33,211	—105,246	—15,128	—52,186
	3 mos.	1,207	3,505,863	76,166	3,676,909	479,447	851,301	169,915	1,614,954	3,248,914	88.4	427,995	146,926	—62,956	—123,957	96,906
Wheeling & Lake Erie.....	March	512	1,548,347	1,791	1,603,015	120,846	332,478	33,952	430,962	946,364	59.0	656,651	453,264	575,149	176,931	647,348
	3 mos.	512	4,024,021	5,627	4,189,271	374,063	858,714	97,981	1,206,485	2,624,769	62.7	1,564,502	1,036,162	1,353,210	537,090	1,570,057

Annual Report

Minneapolis, St. Paul & Sault Ste. Marie Railway Co.

For the fiscal year ended December 31, 1936

To the Stockholders:

Submitted herewith is a report for the fiscal year ended December 31, 1936.

Railway Operating Revenues, Operating Expenses, Fixed Charges, Net Income, etc., are shown in the following condensed statement:

	Year 1936	Year 1935
Railway Operating Revenues	$14,109,840.75	$13,358,635.39
Railway Operating Expenses	12,119,152.00	11,487,444.80
Net Revenue from Railway Operations	$1,990,688.75	$1,871,190.59
Net Rents and Taxes—Dr.	1,594,764.79	1,045,808.44
Net Railway Operating Income	$395,923.96	$825,382.15
Other Income—Net	306,658.99	51,276.10
Income available for fixed charges	$702,582.95	$876,658.25
Fixed Charges, except Interest (See Page 20)	55,700.41	56,200.73
Income Available for Interest	$646,882.54	$820,457.52
Interest on Funded and Unfunded Debt (See Page 20)	6,208,734.87	6,044,804.21
Net Deficit Transferred to Profit & Loss	$5,561,852.33	$5,224,346.69

Railway Operating Revenues were $14,109,841, an increase of $751,205, or 5.62%, compared with the previous year.

Freight Revenue was $11,935,939, an increase of $459,492, or 4.00%.

The increases and decreases in Freight Revenue were as follows:

Products of Agriculture	$1,116,124	Decrease
Animals and Products	250,005	Increase
Products of Mines	428,768	Increase
Products of Forests	288,209	Increase
Manufactures and Miscellaneous	624,152	Increase
Less than Carload Freight	15,518	Decrease
Increase	$459,492	

Products of Agriculture. Because of unprecedented heat and continued drought, there was an almost complete failure of grain and other agricultural crops in a large part of the territory tributary to our line.

Shipments of grain to Minneapolis and Duluth markets from western territory tributary to our line, compared with corresponding shipments of the previous year, were as follows:

	1936 Bushels	1935 Bushels
Before August 1	7,025,517	3,517,225
After August 1	3,982,637	14,560,867
Total	11,008,154	18,078,092

The following table shows the grain crop harvested in each of the years shown and subsequently shipped to market over our line:

Year	Bushels	Year	Bushels
1915	83,527,877	1926	30,627,251
1916	34,233,059	1927	54,138,346
1917	28,560,411	1928	56,816,503
1918	52,002,485	1929	32,867,641
1919	30,393,424	1930	41,556,685
1920	41,232,301	1931	12,118,000
1021	36,832,469	1932	24,470,000
1922	59,429,961	1933	17,307,170
1923	34,657,645	1934	10,070,710
1924	66,280,641	1935	21,586,384
1925	55,374,519		

It is estimated that the corresponding figures for 1936 will be approximately 6,000,000 bushels.

Animals and Products increased as a result of a larger movement of livestock from Canada, and because of a lack of pasturage in North and South Dakota which necessitated shipping livestock to localities where feed was obtainable, or to stockyards for slaughter. Thirty thousand head of sheep from Western drought regions were moved to our territory in Northern Minnesota.

Products of Mines increased on account of heavier movements of iron ore, coal and petroleum products. Iron ore shipped via our line from the Cuyuna Range to Upper Lake Ports amounted to 716,477 tons, compared with 441,031 tons in the previous year. Total iron ore shipments by all railroads from mines in the Lake Superior District in 1936 amounted to 45,203,672 tons, compared with 28,503,501 tons in 1935.

Products of Forests increased as a result of continued improvement in industrial conditions and increased building construction and repairs. The so-called "blanket reduction" in lumber rates from Pacific Coast Territory to points East of Chicago resulted in the railroads regaining a portion of the traffic which had been moving via the Panama Canal.

Manufactures and Miscellaneous increased as a result of improved business conditions and a heavier demand for manufactured merchandise. Paper products showed substantial gains.

Less than Carload tonnage showed an increase, although the revenue decreased. This was largely because of reductions in certain rates to meet truck competition and the railroads' assumption of the costs of pick-up and delivery service. Pick-up and delivery service has enabled us to hold and, to some degree, regain traffic which would otherwise have moved by truck.

Comparisons of cars loaded on our line and received from connections, and revenue, 1932 to 1936 inclusive, are shown in the statement below:

(000 omitted from revenue)

Products, Agricultural:	1932	1933	1934	1935	1936
Cars	30,302	29,977	34,458	33,586	22,435
Revenue	$2,982	$3,276	$2,503	$2,818	$1,702
Products, Animals:					
Cars	11,740	12,215	17,301	9,241	11,686
Revenue	$801	$813	$1,114	$540	$790
Products, Mines:					
Cars	38,663	43,886	46,177	51,105	64,976
Revenue	$1,934	$2,104	$2,120	$2,155	$2,583
Products, Forests:					
Cars	24,228	29,347	27,250	33,843	42,063
Revenue	$1,158	$1,266	$1,132	$1,488	$1,776
Miscellaneous:					
Cars	32,028	31,848	39,616	46,503	55,807
Revenue	$2,570	$2,450	$2,940	$3,488	$4,107
Merchandise:					
Tons	105,326	110,870	101,450	98,713	107,169
Revenue	$1,130	$1,150	$992	$993	$977
Grand Total:					
Cars	136,961	147,273	164,802	174,278	196,967
Revenue	$10,575	$11,059	$10,801	$11,482	$11,935

Passenger Revenue was $868,050, an increase of $140,804, or 19.36%. This was due almost entirely to the heavy travel to and from the Pacific Coast and the Canadian Rockies.

Revenue from Milk and Cream handled in baggage cars was $104,817, an increase of $13,389, or 14.64%. The increase was due partly to traffic being diverted from trucks on account of bad highway and climatic conditions during the winter months, and partly to good pasture during the early part of the summer.

Department of Agricultural Development. The drought and rust of 1935 having left the Northwest deficient in good seed for the 1936 crops, a campaign of education was conducted, in cooperation with various State Extension Departments and the Seed Stock Committee of the United States Department of Agriculture, to advise farmers of the dangers of using light weight grain for seed. As a result, many orders were taken for seed of good quality for planting wheat, oats, barley and flax for the 1936 crops, which, however, were almost completely destroyed by the heat and drought of that year in North and South Dakota, Montana and portions of Minnesota. On account of the drought, no feeding cattle were placed on contract. Livestock activities with Boys' and Girls' 4-H Clubs and experimental work for the improvement of livestock, corn, potatoes and alfalfa were continued.

Bus and Truck Competition. Bus and truck transportation agencies continue to handle an important volume of traffic; and must be regarded as permanent factors. Applications of motor vehicle operators seeking authority to continue operations without a showing of public convenience and necessity under the so-called grandfather's clause, on the alleged ground that they had been operating before the passage of the new law, have been carefully checked by the railroads, with the result that many such applications have been denied. Although the industry is not yet stabilized, important progress is being made in that direction. The necessity of filing interstate tariffs with the Interstate Commerce Commission has tended towards greater stability in rates. The Commission is investigating credit terms, hours of service and other factors entering into the regulation of motor transportation. It is hoped that this will result in regulations which will eliminate some of the unfair advantages which this form of transportation has enjoyed over the railroads, thus enabling the latter to regain such traffic as they can handle more efficiently than the trucks and busses on a basis of fair competition.

General Balance Sheet December 31, 1936

Assets

Property Investment:		
Road	$104,032,343.24	
Equipment	29,336,691.68	
	133,369,034.92	
Less Reserve for Equipment Depreciation (Per Schedule on page 30)	15,297,534.53	
Total		$118,071,500.39
Sinking Fund		926.68
Deposits in lieu of Mortgaged Property Sold		1,096.04
Miscellaneous Physical Property		593,635.01
Wis. Cent. Ry. Co., Preferred Stock (Pledged for M. St. P. & S. S. M. Ry. Co., 4% Leased Line Certificates)		11,256,400.00
Investments in Proprietary, Affiliated, and Controlled Companies:		
Stocks (Per Schedule on page 18)	$12,593,182.47	
Bonds (Per Schedule on page 18)	8,000,943.13	
W. C. Ry. Co. Advances	515,216.44	
Other Advances	2,869,041.64	
Total		23,978,383.68
Other Investments:		
Stocks	$1.00	
Bonds	25,200.00	
Notes	182,014.56	
Real Estate Sales Contracts	22,291.96	
Total (Per Schedule on page 18)		229,507.52
Current Assets:		
Cash	$899,987.57	
Special Deposits—		
Special W. C. Fiduciary Account	1,728,505.47	
Employees Income Tax	355,107.92	
Other Special Deposits	85,008.36	
Loans and Bills Receivable	1,804.74	
Traffic and Car Service Balances	244,542.13	
Agents and Conductors Balances	420,489.54	
Miscellaneous Accounts Receivable	384,919.97	
Material and Supplies	1,955,768.80	
Interest and Dividends Receivable	2,021.72	
Other Current Assets	27,992.60	
Total		6,106,148.82
Deferred Assets:		
Working Fund Advances	$24,636.04	
Other Deferred Assets	396,917.46	
W. C. Ry. Co. Advances Prior to Receivership	7,010,943.94	
Total		7,432,497.44
Unadjusted Debits:		
Rents and Insurance Paid in Advance	$27,103.89	
Discount on Funded Debt	588,029.10	
Discount on Canadian Funds (To be extinguished as loans are repaid)	709,230.65	
Other Unadjusted Debits	1,207,801.43	
Total		2,532,165.07
Grand Total		$170,202,260.65

Liabilities

Capital Stock:		
Common	$25,206,800.00	
Preferred	12,603,400.00	
Total		$37,810,200.00
Governmental Grants:		
Grants in Aid of Construction		74,463.92
Funded Debt Unmatured (Per Funded Debt Schedule on Page 19)		91,671,900.00
M. St. P. & S. S. M. Ry. Co. 4% Leased Line Certificates (Issued in exchange for Preferred Stock of Wis. Central Ry. Co., held by Trustee.)		11,256,400.00
Non-negotiable Debt to Affiliated Companies (Includes $23,794,587.05 payable in Canadian Funds stated at par)		24,592,834.40
Current Liabilities:		
Loans and Bills Payable	$11,944,247.42	
Traffic and Car Service Balances	568,261.88	
Audited Vouchers and Wages Payable	2,465,938.66	
Miscellaneous Accounts Payable	451,320.46	
Interest Matured Unpaid	2,002,427.75	
Interest Matured Unpaid (Leased Line Certificates)	*1,802,212.00	
Unmatured Interest Accrued	370,379.25	
Unmatured Rents Accrued	5,683.77	
Receiver of W. C. Ry. Co.	1,947,373.47	
Other Current Liabilities	176,939.23	
Total		21,734,783.89
Deferred Liabilities:		
Equipment Purchase Contracts	$1,604,340.56	
Other Deferred Liabilities	37,292.68	
Total		1,641,633.24
Unadjusted Credits:		
Tax Liability	$901,167.22	
Premium on Funded Debt	621.56	
Other Unadjusted Credits	522,280.78	
Total		1,424,069.56
Corporate Surplus:		
Additions to Property thru Income and Surplus	$242,259.16	
Profit and Loss, Debit Balance	20,246,283.52	
Deficit		20,004,024.36
Grand Total		$170,202,260.65

*Unpaid installments, liability for which is denied.

Operating Expenses.

	1936	1935	Increase (Decrease)	Per Cent
Gross Operating Revenue	$14,109,841	$13,358,636	$751,205	5.62
Expenses:				
Maintenance of Way and Structures	2,200,002	2,110,729	89,273	4.23
Maintenance of Equipment	2,701,068	2,593,808	107,260	4.14
Traffic	425,468	419,978	5,490	1.31
Transportation	6,047,233	5,721,996	325,237	5.68
Miscellaneous	62,864	47,033	15,831	33.66
General	703,695	610,043	93,652	15.35
Transportation for Investment—Credit	21,178	16,142	(5,036)	31.20
Total Operating Expenses	12,119,152	11,487,445	631,707	5.50
Operating Ratio	85.89	85.89	(.10)	
Net Revenue from Railway Operation	1,990,689	1,871,191	119,498	6.39

(Parentheses indicate decreases)

Wage Restorations. The final wage restoration of 5% effective April 1, 1935, in accordance with an agreement with the labor organizations increased payrolls the first three months of 1936 as compared with the same period in 1935 as follows:

Maintenance of Way and Structures	$11,675
Maintenance of Equipment	15,394
Traffic	2,182
Transportation	51,641
Miscellaneous	164
General	7,118
Total	$88,174

Maintenance of Way and Structures Expenses increased $89,273, or 4.23%. In addition to the wage restoration shown above, abnormal snow conditions increased these expenses $52,200. Increased expenditures for Ties, Rail, Other Track Material and Bridge Repairs were necessary to maintain the property.

Maintenance of Equipment Expenses increased $107,260, or 4.14%. Depreciation accruals increased $27,700 because of revision of depreciation rates on certain classes of equipment. The balance of the increase was on account of the wage restoration and repairs to locomotives and passenger cars required for handling the traffic.

Transportation Expenses increased $325,237, or 5.68%. The transportation ratio increased but .03% notwithstanding the wage restoration and increased station, yard and train forces required for the prompt handling of increased traffic. The transportation effort required to move the traffic and represented by Gross Ton Miles increased 11.07%.

General Expenses increased $93,652, or 15.35%. This is largely explained by a credit taken into account in 1935 representing accruals from August, 1934, to April, 1935, under the Railroad Retirement Act of 1934, which was declared unconstitutional on May 6, 1935.

Tax Accruals increased $285,900. This increase included $226,100 for accruals under the tax imposed in connection with the Railroad Retirement Act of 1935 and $74,800 for accruals of Federal Social Security Taxes.

Hire of Equipment Expense increased $268,896 due to increased rental of foreign cars amounting to $40,900 and changes in accounting for rental of equipment leased to the Wisconsin Central and Duluth South Shore & Atlantic Railways to conform with Interstate Commerce Commission requirements. Rents received from these railways amounting to $228,000 are included in "Other Income."

Property Investment. The investment in road account shows a net decrease of $136,745 for the year, resulting from retirements and accounting adjustments totaling $488,506, offset in part by expenditures for additions and betterments, amounting

to $351,761. The expenditures were principally for the application of tie plates, replacements of rail with heavier rail, and eliminations of two grade crossings. Abnormal retirements aggregating $323,654 included in the above figures represent the book value of approximately 16.4 miles of line from Rice Lake, Wisconsin, to Birchwood, Wisconsin; also 51,483 feet of various other side and yard tracks, six maintenance of way, station, and shop buildings, and other property no longer required.

The equipment investment account shows a net increase for the year of $457,309, resulting from gross expenditures of $1,348,431, less retirements and accounting adjustments totaling $891,122. The major portion of the expenditures represents the purchase of 500 box cars and 1 Russell snow plow. The retirements include 3 locomotives, 530 freight train cars, 4 passenger train cars, and 27 work equipment units.

Funded and Unfunded Debt. The outstanding indebtedness was decreased during the year a net amount of $282,148.76, as follows:

Decreases:	
First Refunding Mortgage Bonds, Series A	$21,000.00
Twenty-five Year Gold Notes	134,900.00
Equipment Trust Notes	177,000.00
Short-term Loans from Reconstruction Finance Corporation	49,761.93
Short-term Loans from The Railroad Credit Corporation	818,720.37
Total Decrease	$1,201,382.30
Increase:	
Equipment Purchase Contracts	$919,233.54
Net Decrease	$282,148.76

In addition to the above Non-Negotiable Debt to Affiliated Companies increased $5,363,597.04.

Because of continued crop failures and adverse economic conditions prevailing in our territory, the Company was unable to pay the principal of its $5,000,000 of 2 Year 6% Secured Notes which matured on August 1, 1936, and asked for a further extension to February 1, 1938, with a reduction in the rate of interest to 5% per annum. Holders of $4,899,000 principal amount of notes have granted this extension. A similar extension to February 1, 1938, was granted by Reconstruction Finance Corporation on its $5,000,000 loan to the Company which matured on August 1, 1936.

Wisconsin Central Railway Company. The Wisconsin Central properties are still in receivership; the Soo Line is still operating them as agent for the Receiver; the Court's decision that the Soo Line was entitled to terminate its lease of these properties still stands; and the controversy as to whether the lease was actually terminated is still pending.

Clarkson Coal Mining Company. On July 1, 1927, in adjustment of various matters in dispute, this Company received, among other things, $2,000,000 principal amount of First Mortgage Bonds, secured by a mortgage on the property of the Mining Company. Through the operation of the sinking fund this amount was reduced to $1,801,000. There was a default under this mortgage on January 1, 1934, and foreclosure proceedings were begun. Later the Provident Properties Company was organized under the laws of Ohio, its entire capital stock being owned by this Company. Using the defaulted bonds in payment, the Provident Properties Company on September 19, 1936, purchased the properties of the Clarkson Coal Mining Company at foreclosure sale for $500,000. The entire capital stock of Provident Properties Company has been pledged with the Reconstruction Finance Corporation and The Railroad Credit Corporation in lieu of the Clarkson Coal Mining Company bonds which have been cancelled. This transaction resulted in a charge to Profit and Loss of $1,301,000.

The results for 1936 were very disappointing. While our general business showed an increase, the grain crops were almost an entire failure as a result of heat and drouth.

The outlook for 1937 is not good for the western Dakotas and eastern Montana because of the shortage of moisture. They had no fall rains and practically no snow during the winter Very favorable seasons must be had to produce a crop in that territory. Minnesota and the eastern and southeastern part of North Dakota have been favored with snow and will be in a favorable position for spring seeding.

Our general business has been showing an increase which is being maintained, especially in forest products. In addition, we feel sure of a considerable increase in iron ore loadings.

The property has been adequately maintained and is in condition to handle a reasonable increase in business.

Again I want to express my appreciation of the loyalty shown by all of the staff during these most discouraging years.

C. T. JAFFRAY,
President

Minneapolis, Minn.
April 19, 1937

News (Financial)

(*Continued from page 809*)

ton, N. J., to Barnegat, 12 miles, and a branch from Manahawkin, N. J., to Hilliard, 3 miles. This line was abandoned in 1936, and the company proposes to resume service.

UNION ELECTRIC—*Securities.*—This company has applied to the Interstate Commerce Commission for authority to issue $287,500 of first mortgage 4 per cent non-cumulative income bonds; 5,750 shares of 2 per cent non-cumulative preferred stock of a par value of $50 and 2,500 shares of no par value capital stock.

UNION ELECTRIC.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to purchase the property of the Union Traction, operating an electric line in southern Kansas and Oklahoma, and for a certificate of convenience and necessity to operate the line.

WABASH.—*Protective Committee.*—Eleven life insurance companies holding various bonds and equipment trust obligations of this company have formed a group to protect the interests of these particular holders in the securities they own in the Wabash. The holdings of members of this group include Wabash first mortgage 5s due 1939, Wabash second mortgage 5s due 1939, Wabash Des Moines Division first mortgage 4s due 1939, Wabash Detroit & Chicago extension first mortgage 5s due 1941, Wabash Toledo & Chicago Division first mortgage 4s due 1941, Wabash Omaha Division first mortgage 3½s due 1941, Wabash first lien terminal mortgage 4s due 1954, Ann Arbor first mortgage 4s due 1995 and various issues of equipment trust certificates.

WESTERN MARYLAND.—*Annual Report.*—The 1936 annual report of this road shows net income, after interest and other charges, of $1,710,113, as compared with net income of $1,002,657 in 1935. Selected items from the income account follow:

	1936	1935	Increase or Decrease
Average Mileage Operated	882.92	883.07	−.15
RAILWAY OPERATING REVENUES	$16,298,270	$14,791,402	+$1,506,867
Maintenance of way	2,151,630	1,979,202	+172,428
Maintenance of equipment	3,292,741	3,433,021	−140,280
Transportation	3,972,511	3,734,934	+237,577
TOTAL OPERATING EXPENSES	10,464,046	10,205,418	+258,628
Operating ratio	64.20	69.00	−4.80
NET REVENUE FROM OPERATIONS	5,834,223	4,585,984	+1,248,239
Railway tax accruals	1,198,428	785,664	+412,764
Railway operating income	4,635,795	3,799,771	+836,023
Hire of Equipment —Net	312,043	374,706	−62,662
Joint facility rents —Net	163,622	66,800	+96,822
NET RAILWAY OPERATING INCOME	4,784,216	4,107,677	+676,539
Non-operating income	82,270	82,098	+172
GROSS INCOME	4,866,486	4,189,775	+676,711
Rent for leased roads	59,369	52,568	+6,801
Interest on funded debt	2,697,648	2,703,390	−5,741
TOTAL DEDUCTIONS FROM GROSS INCOME	3,156,373	3,187,117	−30,744
NET INCOME	$1,710,113	$1,002,657	+$707,456

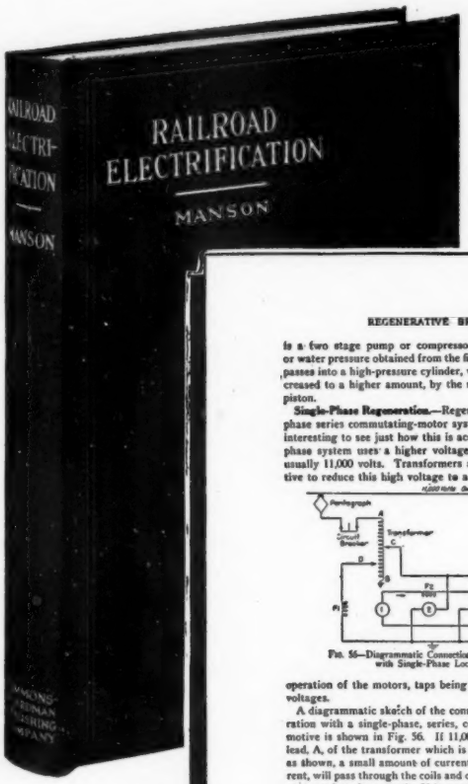
Dividends Declared

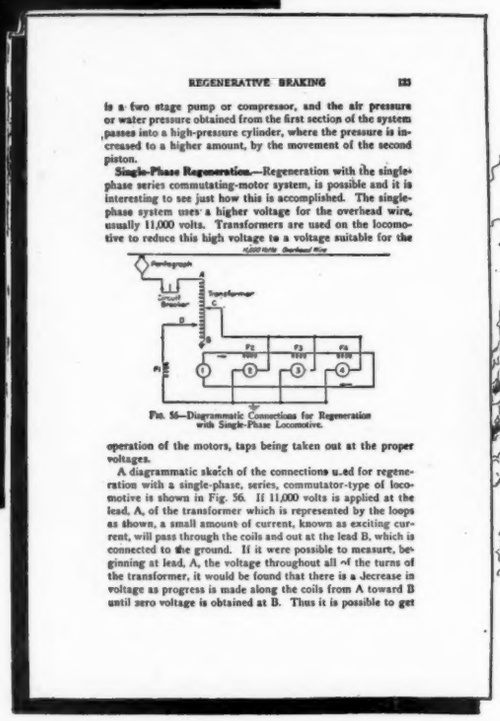
Cleveland & Pittsburgh.—Guaranteed, 87½c, quarterly, payable June 1 to holders of record May 10.

Average Prices of Stocks and Bonds

	May 4	Last week	Last year
Average price of 20 representative railway stocks	57.46	56.35	44.97
Average price of 20 representative railway bonds	81.19	80.77	78.52

Railroad Electrification and the Electric Locomotive





REGENERATIVE BRAKING 133

to a two stage pump or compressor, and the air pressure or water pressure obtained from the first section of the system passes into a high-pressure cylinder, where the pressure is increased to a higher amount, by the movement of the second piston.

Single-Phase Regeneration.—Regeneration with the single-phase series commutating-motor system, is possible and it is interesting to see just how this is accomplished. The single-phase system uses a higher voltage for the overhead wire, usually 11,000 volts. Transformers are used on the locomotive to reduce this high voltage to a voltage suitable for the

Fig. 56—Diagrammatic Connections for Regeneration with Single-Phase Locomotive.

operation of the motors, taps being taken out at the proper voltages.

A diagrammatic sketch of the connections used for regeneration with a single-phase, series, commutator-type of locomotive is shown in Fig. 56. If 11,000 volts is applied at the lead, A, of the transformer which is represented by the loops as shown, a small amount of current, known as exciting current, will pass through the coils and out at the lead B, which is connected to the ground. If it were possible to measure, beginning at lead, A, the voltage throughout all of the turns of the transformer, it would be found that there is a decrease in voltage as progress is made along the coils from A toward B until zero voltage is obtained at B. Thus it is possible to get

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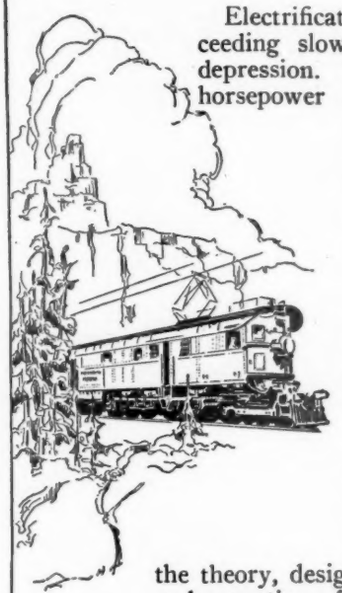

Electrification has been proceeding slowly in spite of the depression. Because of greater horsepower and more serviceability hours a day, one electric is the equivalent of two steam locomotives.

While few roads are at present in a position to make large capital expenditures required for new electrification projects, there is no retrogression in this field. Expansion of electrification continues.

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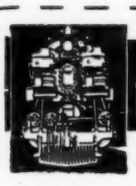

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